The Builder.

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Some Cities of Modern Italy.—Bologna.

IT is curious to read at the present day the prophetic utterances of only twenty or thirty years ago on the future of Italy, and more especially on the future of the old Italian cities. How differently they have developed from what was expected! A writer of only fifteen years ago describes Bologna as a very *triste* place; the streets, rendered narrow by their endless porticos, seemed buried in a melancholy gloom. The baroque style of so many of the palaces and public buildings imposed a sense of the hated pontifical government, which had then but recently disappeared. To an Italian, the city seemed a "Roma piu piccola," and, as such, represented all that was distasteful in civic architecture and public monuments.

Fifteen years ago the terrible word "sventramento" had only just been adopted to express that radical change and improvement in the conditions of the old cities, that clearing away of the old squalid centres, which has now become the order of the day. The "sventramento" of Bologna is comparatively very recent. It hardly commenced before 1890, and although so few years have elapsed, the changed condition of the city is very remarkable. The grand new "Via della Indipendénza," which leads from the railway station to the piazza in the centre of the city, was only commenced about 1892, and already it is practically complete, almost the last of its palaces being ready for the joiners and electric fitters to put the finishing touches. The writer above referred to seems to have thought Bologna would prove an unsatisfactory example of a modernised town, because the new streets then projected were intended to be lined in the old fashion with porticos. But if he should ever revisit it, he will perhaps be surprised to find the Via della Indipendénza a sufficiently gay scene of an evening, its porticos lit up with electricity and thronged by a pleasure-seeking crowd of promenaders attracted by the brilliantly lighted shops or the numerous cafés chantant.

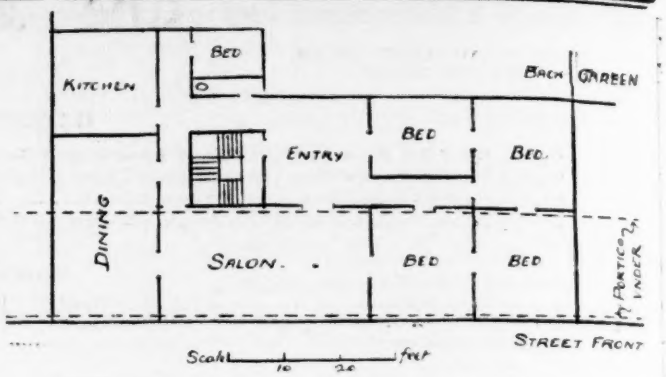
Bologna is situated on an absolutely flat level at the foot of the Apennines, and consequently lacks the advantage of a picturesque site. But to compensate for this, advantage has been taken of a mound of earth within the old city limits, to form a most ingenious and effective principal entrance to the city from the railway station. This is called the "Montagnola" (fig. 1); it forms a large public garden and promenade, and at the same time is a kind of high terrace overlooking the "Via della Indipendénza." Raised on one of the characteristic porticos, it constitutes for a considerable distance the side of this principal street. This work dates from 1896. It has since been decorated with a grand staircase covered with sculpture, to form a memorial of the expulsion of the Austrians from the city during the War of Independence. Part of this monumental public garden, and also of the street, is a large theatre and café chantant, built last year by an enterprising citizen, whose speculation has succeeded much better than was expected. In summer time concerts are given in the open air on the upper terraces of the gardens; in winter (the severe snowy winter of North Italy) the theatre entered from the street is used.

This new quarter of the city consists of immense brick palaces, divided up into flats, and supported on porticos of imposing proportions. As a general rule the fronts are covered with cement, and but little stone is used. In some cases the façades are of brickwork *au naturel*—with elaborate carved and moulded ornaments to doors and windows. The colour of the local brick is always pleasing—and a considerable quantity of terra cotta of the same tone is introduced. Whenever moulded brick is used, the more exact forms of the pseudo-Classic style are departed from, and a very free adaptation of the earlier Renaissance, mixed with Gothic details, is generally used. In such cases, although these details may be copied from mediæval examples, there is no attempt at mediævalism in their application. Doric or Corinthian columns support pointed arches with cusp decoration, and the balconies and string courses are a mixture of Classic cornices and Gothic quatrefoils. A bastard style in a small building generally looks puerile, or the result of ignorance, but when used on the scale of such buildings as the Bolognese, of 60 ft. to 70 ft. in height on an average, its use challenges attention.

The most important characteristic of Bologna is, of course, the universal adoption of porticos over the side-walks of the streets, a system of constructing a city only possible in the climate of Italy. Anywhere else the ground floor of such houses would be uninhabitable, and even in Bologna, in winter time, they are not only abominably dark, but very damp and unhealthy. The chief reason for this mode of construction seems to be, that the city is subject to extremes of climate. In winter it is visited by terrible snowstorms, and in summer the thermometer runs up to about 100 deg. Fahr. in the shade. With such climatic conditions the arcades are of great advantage; it is, in fact, a city wherein umbrellas and sunshades are practically unused. Like many other cities of the Lombard Plain, Bologna is still very mediæval in the matter of drainage. The gutters for rain-water are constructed in the middle of the streets and not at the sides. This economy of drain-pipes is possible in consequence of the small area of the streets exposed to rain. An effort has been made to introduce the water drainage of houses in the Northern European style, but proves a failure. The supply of water for the purpose is insufficient, and the sewers have been constructed on so small a scale that they easily get out of order and are difficult to repair.

The new flats built over the porticos generally follow a local type of plan (fig. 2). The back wall of the portico is always the central wall of the flats overhead. The portico is usually about 13 ft. to 18 ft. wide. This allows of a suite of rooms over of fair proportions; at the back another suite is

Fig. 1.



BOLOGNESE TYPE OF HOUSE - PLAN

Fig. 2.

tacked on, forming entrance, kitchen, and bedrooms. As in all Italian house plans, such passages as exist are badly arranged and lighted, and in a general way the rooms have a tendency to lead one out of another. The ground floors of such houses are always devoted to shops and offices.

In construction, the portico is invariably vaulted in the ordinary way. The rest of the building is usually provided with iron and hollow brick floors, covered with the well-known mosaic of marble fragments set in cement.

Perhaps the most noticeable and, on the whole, satisfactory modern building of Bologna is the new Savings Bank. This is a completely detached four-fronted building, faced with the fine local limestone, which receives a good polish almost like marble, and with a large amount of inlaid work in the form of panels, &c., of what is commonly called red Verona marble. The design is simple and well proportioned, and suited to the materials; there is an absence of any affectation or striving after novelty, and the detail is not so over-elaborated as is often the case in Italian buildings.

In the Savings Bank building (fig. 3) the square piers which support the principal front are of stone, as is often the case with these porticos; but they are constructed of brick usually, and it is very wonderful to see what enormous weights brickwork used in this way is capable of supporting. In the majority of instances the brickwork, which is apparently moulded expressly for the purpose, takes the form of a Doric column with entasis complete, and always in the proper proportion to its height and architrave; the capital and base are usually stone. The bricks used in these columns are about 10 in. long on the curve and 2½ in. thick, but the sizes vary. The mortar used seems of exceptional good quality. The art of building in this style is of remote antiquity, and it may, perhaps, be looked upon as a Lombard speciality.

Very few restorations of ancient monuments have been undertaken in Bologna in modern times. About 1860 the exceptionally interesting church of St. Stephen, which represents in a curious way the buildings of the Holy Sepulchre of Jerusalem as they stood in the tenth century (before the Crusades) was subjected to disastrous rebuilding, which has destroyed much of its interest. At present the immense church of S. Francesco is being restored in a more conservative spirit, but the decorations are rather vulgar, although they display a very considerable knowledge of the mediæval style of Italy. This church has a regular

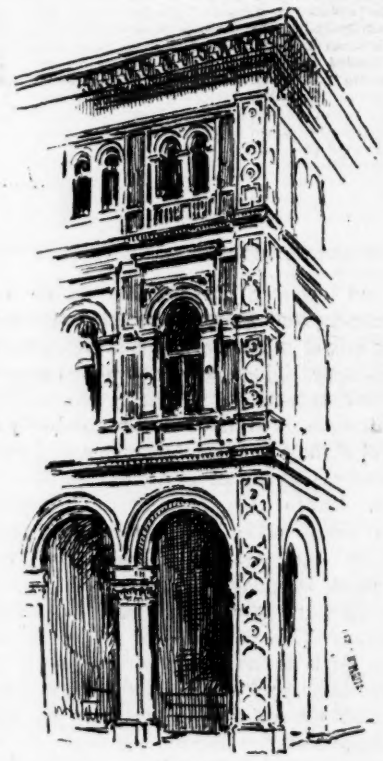


Fig. 3.

chevet of chapels at the east end, like a French cathedral, each of which is being decorated in a different design with stucco relief in the diaper ornaments rather suggestive of "Lincrusta" wall paper. The stained glass is of a curious mosaic character, the general effect is singular and bizarre. When complete the restored church will have a very imposing appearance, if not altogether satisfactory.

The walls of the city are merely retained for *octroi* purposes, outside them is a vast suburb of new villas, reminding one of the suburbs of London, their styleless architecture and meretricious ornament, "streaky bacon" brickwork, and slated roofs seem copied from the genuine "speculative builder's" style of twenty years back.

It is singular that the houses outside the town should display so great a want of that architectural feeling which the buildings inside undoubtedly possess.

THE INSTITUTE OF SANITARY ENGINEERS.—At a meeting of the Election Committee held on the 9th inst., the following gentlemen were elected Members:—Mr. J. R. Siva. S. Aiyar, Madras; Mr. J. J. Marsland, Bombay.

THE FOUNDATIONS OF VAUXHALL BRIDGE.

WHEN the day's toil is over the ordinary person turns to his evening paper for entertainment, and he is prepared to treat want of accuracy with some amount of indulgence. But in the morning one looks for sobs facts and serious criticism, and we are therefore a little surprised to notice that the *Daily News* has recently attempted to be funny over some imaginary difficulties in connexion with the new Vauxhall Bridge works. Our contemporary suggests that "some serious mistake has been made as to the nature of the foundations upon which the old structure was based," and that "it is very doubtful whether the old piers do not rest upon wooden piles." In this event it is said that "plans are all upset"; the playful remark is made that the piles will have to be pulled out "like so many huge teeth," and it is implied that the work must be carried down a good deal further than was intended, at a greatly increased cost. A mysterious reference is also made as to "explorations towards Australia," and, finally, it is hinted that the "fundamental part of the problem"—whatever that expression may mean—will have to be planned all over again, and that nobody can say when the new bridge may be finished.

This lapse of the *Daily News* into the new journalism may possibly lead to some misconception, and it will therefore be useful to make a brief statement of the actual facts. As we have previously pointed out, the foundation-stone of old Vauxhall Bridge, laid in 1811, was discovered in September last above the pile-supported platform of the Westminster abutment. The existence of piles has consequently been known for some time past, and the statement that they may still be present will probably cause no undue excitement in the engineer's department of the London County Council. So far as the remainder of the old structure is concerned, it is believed that no piles were used on the Surrey side, and none under the intermediate piers, because when the iron spans were removed the piers almost immediately began to deviate from the perpendicular. No doubt this circumstance was chiefly owing to undercutting of the gravel bed upon which it is said the foundations rested, and it is clear that if the piers had rested upon piles no such settlement would have taken place. Before the present designs were commenced full inquiry was made into the early history

of the old bridge. Existing records were examined, and information was furnished both by the present company and by a grandson of John Rennie, the original engineer. There never has been any dispute as to the facts that the bridge was at first intended to be of arched masonry, and that iron spans were substituted, for financial reasons, after preparations had been made for the foundations of the Middlesex abutment. This altered programme would very probably lead to the omission of piles under the foundations subsequently formed. One of the reasons rendering necessary the rebuilding of the bridge was a knowledge of the fact that the masonry of the piers was considerably undermined by tidal action, and in the investigations through which this condition became evidenced no indications of pile work were discovered. Further, it should be remembered that the piers of the new bridge will be of much greater sectional area than the piers of the old bridge, owing to increase of span, and in only one instance do the old and new sites coincide. In any case, therefore, all but one of the old foundations would have to be cleared away, and the new foundations have always been intended to rest upon the stratum of clay lying beneath the gravel bed of the river. The new abutments will cover and extend beyond the old sites on each side of the river, but the piles will not be removed. At the present time the old piles on the Middlesex shore have been bared for a depth of from 3 ft. to 5 ft., and are found to be in excellent condition. Additional piles are to be driven for the purpose of providing a sufficiently extended support for the new foundations; the new piles will project from the excavation to the same height as the old piles, and concrete will then be filled in to the level of the timber. If piles should by any chance be found on the Surrey shore, and beneath the one other coincident foundation, a similar course will be pursued. In the unlikely, though not unconsidered, event of any piles being discovered where they will be in the way of new work, removal will of course be necessary, but it is usual that material of one kind or another should be removed when excavations are undertaken. Nothing has occurred which will in any way upset the plans of the engineer, or which he has not already foreseen, and the work is proceeding without interruption or hindrance, although perhaps not quite so rapidly as might be desired.

ENTERIC FEVER AT CHICHESTER.

ON many occasions during the last forty years Chichester has suffered abnormally from enteric fever, but unfortunately it has not been found possible to discover any one local condition to which the outbreaks of the disease can clearly be attributed. In 1896 and 1897, as well as in 1898, the disease was prevalent to such a serious extent that, in August of the last-named year, an inquiry was held by Dr. Theodore Thomson and Colonel Marsh, R.E., on behalf of the Local Government Board. The elaborate report of these experts has now been published, but, as far as positive evidence of the "agency of fever prevalence" in Chichester is concerned, it is practically silent. It is true that some cases in 1879 were traced to infected milk, and others in 1898 to cockles which had been gathered from sewage-polluted mud-flats; but milk and cockles were not sufficient to account for all the cases in these outbreaks, and appear to have had nothing to do with the outbreaks in some other years. The water-supply, derived though it mainly is from hundreds of shallow wells sunk in a pervious soil riddled with cesspools, cannot (the Commissioners think) be held solely responsible for the outbreaks. Prior to 1895 all houses in Chichester were either undrained or drained to cesspools; since March, 1895, a great number of houses have been connected with the new public sewers, and many of the inhabitants received the impression that the spread of the disease in 1896-7-8 was due to sewer-air. A careful comparison of the numbers of cases in houses drained to cesspools and in those connected with the sewers shows, however, that the incidence of the disease is practically the same in the two classes. Again, no uniform relation can be traced between the disease and the rainfall, or the rise and fall of the subsoil water. Having exhausted all these possible causes of fever-outbreaks, the two experts turn to the soil; but, although they seem to think that this is perhaps the great offender, they are compelled to admit that the facts "do not favour belief that these potentialities as to soil-pollution are in themselves sufficient explanation of the long continuance of this fever in serious amount in Chichester." In conclusion they recommend a thorough investigation of the conditions obtaining in Chichester and other fever-haunted towns, "supplemented by skilled research on the part of the statistician, the geologist, the chemist, and the bacteriologist."

Every one will admit that such an investigation would be of immense service to the community, but years would probably elapse before the results were made public, and in the meantime the disease is levying its annual toll of suffering and death. We cannot but think that, in Chichester as in many other towns, the repeated appearance of enteric fever is due to a variety of causes, and that the search for a single cause will be as fruitless as the search for a universal solvent. In some years one insanitary condition may be the principal agency by which the disease is communicated, while in other years it may be originated by other insanitary conditions. The private water-supply of Chichester is admittedly bad. Two samples of well-water tested by Sir Edward Frankland in 1898 were so seriously polluted that he was obliged to report that both wells ought to be closed; "nearly one-fifth of the water" from one of the wells had, he said, "been in the condition of average London sewage." When the number of leaky cesspools is taken into consideration, the dangerous nature of much of the well-water is obvious, and there can be no doubt that, at some time or other, cases of typhoid fever must have been caused by drinking the foul water from such shallow wells. But if the water is polluted, the probability is that milk also will at some time or other be polluted, and cases of typhoid fever would occasionally, as in 1879, be caused by such infected milk. Then again, the germs of typhoid fever may be conveyed by air as well as by water, and it is possible, therefore, for the disease to be communicated by the emanations from cesspools and from the sewage-polluted soil.

It is clear to us that the endemic nature of typhoid fever in Chichester is due to a variety of insanitary conditions, and steps ought to be taken at once by the sanitary authority to put an end to these conditions. The construction of main sewers was an important improvement, but much more remains to be done. Shallow wells ought to be closed, cesspools and midden-privies ought to be abolished, and drains to be properly laid from every house, disconnected from the sewers, and ventilated. The construction of houses ought also to be carefully considered, especially with a view to preventing the admission of ground-air. The hospital accommodation is at the same time insufficient, and ought to be increased. There can be little doubt that the improvements now suggested would not only reduce the mortality from enteric fever, but would also tend to improve the general health of the city.

NOTES.

Architect's Drawings.

A CORRESPONDENT asks us once more the frequently recurring question, whether, when a building has been carried out, the employer can demand the plans and contract documents from the architect. The question is one which cannot at present be very satisfactorily answered, as the point does not seem to have been decided by any high legal court of late years. In 1870 the point came before the Court of Exchequer, which, as far as the imperfect report goes, seems to have held that the drawings belonged to the employer. One argument seems to be that the employer is entitled to the drawings where the building is not carried out; why is he not entitled to them when it is carried out? The cases, however, are not quite parallel. The argument on the architect's side would be that, in the case of a building carried out, he was not engaged to produce drawings of a building, but to devise a building and oversee its erection, and the plans are merely his method of communicating his ideas to the workmen. One reason the question remains legally unsettled probably is that, as a matter of fact, very few clients demand the drawings. If they are ever required for reference, it is probably more to the client's own convenience that they should be filed in the architect's office. Nevertheless, if any test case is ever taken into a high court, so as to become a precedent, we anticipate, from observation of the proclivities of the legal mind, that it will be settled against the architects; so perhaps the best policy is to avoid letting any such case come into court.

The Proposed Asylum for York.

WE printed in our issue of March 3 a letter from the Medical Superintendent of the Middlesbrough Asylum, commenting on what appeared to be the intention of the York City Council to reproduce the plans of the Middlesbrough Asylum and employ their Engineer to carry it out, and urging, quite rightly, that an architect with special knowledge of asylums should be employed. At a meeting of the York City Council last week there was a long discussion on the subject, in the course of which

it was denied that there had been any intention of simply copying the plans of the Middlesbrough Asylum; "they were no more to be used than the plans of any other asylum," which seems to be an admission that the system of setting their engineer to adapt the plans of other asylums was, at all events, to be used. Two very strong letters were read, one from the Institute of Architects, the other from the Lunacy Commissioners, both condemning the system of building an asylum without employing an architect who was specially conversant with such work. These seem to have had a good deal of effect on the minds of some members of the Council, but in the end the amendment of Mr. Scott, to the effect that it was not advisable to employ the City Engineer as architect for the proposed asylum, and that the Asylum Committee be instructed to select an architect who had experience in that class of work, was lost by a majority of 23 to 17. Ideas of economy seem to have been at the bottom of the decision. It will probably be found to have been a false economy.

Protection for Railway Servants.

THE Prevention of Accidents Bill has been returned by the Grand Committee on Trade in much the same form as when submitted to them for consideration. The schedule setting forth the various matters in respect of which the Board of Trade are empowered to make rules is absolutely unaltered, although notice had been given of a considerable number of amendments. The schedule had been the subject of negotiations with the railway companies before the Bill was drafted—doubtless with the view of obviating protracted discussions at a later stage—and Mr. Ritchie was able to induce the Committee to leave it alone. With regard to the question of experiments, the railway representatives were only defeated by one vote in an endeavour to restrict the powers of the Board to the one subject of automatic couplings. This was all that last year's Bill proposed, but we have got beyond that now, for the principle has already been adopted, both by the House and the Committee, of empowering the Board to require the use of "any appliance which had been shown to their satisfaction to be calculated to reduce danger" to railway employés. It is extremely improbable that the Board of Trade will abuse the powers entrusted to them.

Elementary Schools.

THE new rules to be observed in planning and fitting up public elementary schools have recently been issued. The innovations are very few, the most important being in regard to schools with a central hall. Hitherto the Education Department has allowed one class (or under special circumstances two classes) to be taught in the central hall, but this permission is now withdrawn for infants' schools, and for boys' and girls' schools it is said that one or two classes "*may sometimes* be allowed." There is only one other addition to the rules, and this is that benches "should be fitted with backs." We note that the regulation as to the allowance of "from 275*l.* to 500*l.*" which the Department was in 1899 prepared to sanction for the building of a cookery centre, has been altered to "an allowance varying from 15*s.* to 20*s.* per square foot." As the size of a cookery school must be not less that 750 square feet, it follows that the Department will now sanction an expenditure varying from 562*l.* 10*s.* to 750*l.* for the smallest cookery centre. This is certainly an improvement, as the sum formerly allowed was quite inadequate for the purpose.

Euston Station.

THE preamble of the Bill for the enlargement of Euston Station has now been passed by a Committee of the House of Commons. Broadly speaking, the new Euston Station will face the gardens in Euston-road. The existing station will be brought forward and broadened. The company propose to spend nearly two millions on this work. It is obvious that the new building will be an important addition to London, and that it will give opportunities for a structure which should be a credit to the Metropolis. The existing Euston Station was at one time regarded as a building above the average, the Central Hall having a good deal of dignity. But of late the traveller has begun to wish that the hall were platforms, and it has begun to be recognised that large terminal stations should be as simple as possible in their arrangements—whereas the hall at Euston cuts the station in two. The station at Frankfort is usually considered the most perfect in Europe, and certainly it is one of the easiest and most convenient for the traveller, since the moment the booking offices are left there is in front the various platforms accessible and obvious. In France the station at Tours, though smaller, is a satisfactory building internally, and imposing externally, partly, no doubt, because of the large space in front of it. In this respect the new Euston will have much in its favour, facing the broad space of Euston-road and its gardens.

Improvements in Electric Meters.

THE modern electric meter compares very favourably with the pioneer types in use ten years ago, but the introduction of higher pressures and small candle-power glow-lamps has made it necessary that it should record at a much smaller load than formerly. Now in an electric meter the drop in pressure from one side to the other must not be greater than 1 per cent., and is often much less, hence the fraction of the power left to turn the rotary parts at light loads is very small, and as less than $\frac{1}{10}$th per cent. of the energy received by a meter is converted into useful work inside it, the friction of the rotating parts must be almost infinitesimal if it is to rotate at all at light loads. The elimination of friction is therefore the problem which meter manufacturers have to solve. Recently attempts have been made in the direction of using magnetic force to take the weight of the rotary parts of a motor meter off its bearings. In the Stanley meter, recently introduced in America, the spindle supporting the rotating aluminium disc simply floats in the air suspended by the attraction of iron discs fixed on it and the iron ring poles surrounding them. This meter, however, only measures alternating currents. Mr. Evershed, in an admirable paper read to the Institution of Electrical Engineers, last week, described a "frictionless motor meter" which he has invented. In the ordinary meter the friction is nearly all due to the step bearing which is usually a rounded steel point resting in a jewel cup. Mr. Evershed magnetically suspends nearly the whole weight of the spindle armature and brake, and the results he has obtained are excellent. Curves were shown illustrating the results of tests of two of his meters by the Board of Trade, and their accuracy was wonderful. At full load the inventor found that the air friction was less than one-half per cent. of the total resistance, and the mechanical friction was only half the air friction. Mr. Evershed's paper is a pleasure to read. He begins by a clear statement of the general principles he employs; he then gives the constructional details of the various parts, and finally in an appendix gives an elegant mathematical demonstration of the theory of his meter and the result of tests on it.

Parish of St. Pancras.

THE annual Report of the Chairman on the business of the Works Department of the Vestry of St. Pancras mentions, among other things, a proposed attempt on the part of the Vestry to put a stop to the serious inconvenience caused by ropes stretched across the footway of the streets for lowering goods (especially casks) from vans into the cellars. It was proposed that statutory powers should be obtained to compel the use of hydraulic or other power for this purpose whenever a public-house was rebuilt; but on consideration this idea was abandoned as inadequate, and it is suggested that some more drastic regulation is required to deal with it. The subject of the difficulty of clearing the streets of snow is referred to:—

> "People who think over the matter superficially do not realise all the difficulties. Every man employed by a Local Authority has to be numbered, timed, and booked, whether he work for an hour or a week, and the wages have to be paid daily and accounts balanced, demanding the whole attention of the indoor staff, to the prejudice of every other branch of their work.
>
> The work of clearing the footways has often to be done twice over, because there is no stated time in which occupiers are compelled to clear their steps and forecourts, which is frequently done after the footways have been cleared, which are again littered by those who cast the snow upon them in the expectation that the Vestry will diligently visit the street a second time to counteract their want of forethought or unwillingness to do more than what is just needful for their own convenience."

In consequence of this state of things, the Report suggests that it would be expedient to seek for an alteration of the law, with a view of reverting to the former obligations on occupier. We have always been of opinion that the cancelling of the obligation on an occupier to clear the pavement before his own premises was a mistake.

Johnson-court, Fleet-street.

FOR some new premises that are now being erected in Johnson-court the house has been pulled down to which Dr. Johnson removed, in 1765, from No. 1, Inner Temple-lane, and which he left for No. 8, Bolt-court, Fleet-street, eleven years afterwards. Thus of his many residences in London—seventeen are recorded—only one of those authentically identified now remains, being that which forms the west side of Gough-square, north of Johnson-court. From the house in Johnson-court he started for his travels in Scotland and the Western Isles, France, and North Wales, and there he shared his home with Mrs. Anna Williams and Robert Levett.

Bushey Park.

IT is stated that the Office of Works have sanctioned a proposal made by the Hampton Wick Urban Council to erect an inscribed memorial tablet in honour of Timothy Bennet, the shoemaker of Hampton Wick, to whose spirited exertions the free enjoyment of Bushey Park by the public may justly be considered to be due. About 150 years ago Lord Halifax closed the footpaths leading across the park to Hampton and Hampton Court from Hampton Wick to all who were not ticket-holders, thus renewing the obstructions which had been imposed in the reign of Charles I., but had been removed by Charles II. shortly after the Restoration.

Views of London.

IN the sale of the Peel collection last week were included a signed picture by Canaletto of Greenwich Hospital as seen from the Thames, with Flamsteed's observatory in the background, and two small views of the cities of Westminster and London, from the river, by Samuel Scott. In one of the latter Scott depicts Westminster and Lambeth, as seen beyond Westminster Bridge, with Derby House and Whitehall Stairs in the foreground. It is an early view, for he shows Labelye's Bridge—which was opened for traffic on November 18, 1750—as unbuilt at its southern end, and with the centreing under four of the constructed arches. The other picture, taken from mid-stream a short distance above Temple Stairs, presents a view of Whitefriars, the mouth of the Fleet, Blackfriars, St. Paul's, with many of the City churches, and old London Bridge, with the remaining houses that were finally removed in 1757-8. The first-named painting was sold for 100 guineas, those by Scott realised 155 guineas and 110 guineas, whilst a view on the Grand Canal, Venice, by R. P. Bonington, was bought for 650 guineas.

THE ARCHITECTURAL ASSOCIATION.

THE last meeting of session 1899-1900 of the Architectural Association was held on Friday evening last week in the Meeting Room of the Royal Institute of British Architects, No. 9, Conduit-street, Regent-street, Mr. G. H. Fellowes Prynne, President, in the chair.

Some nominations having been read, the following gentlemen were elected members:—Messrs. T. S. Gregson, J. A. Hallam, F. C. R. Palmer, W. B. Stonebridge, and R. J. Goulston.

The Chairman announced that the annual dinner would be held on Thursday, May 31.

On the motion of Mr. G. B. Carvill, Hon. Secretary, a vote of thanks was accorded to Mr. H. C. Corlette for presenting to the library a printed copy of his paper, read before the Association, entitled "The Decoration of Churches."*

The Chairman said he desired to pass a vote of thanks to those ladies and gentlemen who had been responsible for the *soirée* the previous evening. Those members of the Association and others who had attended at the entertainment would feel that they owed a great debt of gratitude to Mr. G. B. Carvill and Mr. H. D. Clapham and all those who took part in what was quite one of the best entertainments ever given by the Association.

The motion having been agreed to, Mr. Alexander Payne read the following paper on

Egyptian Temples.

"I think I may say without fear of contradiction that in studying the temples of Egypt we are studying the earliest monuments that exist devoted to religion and erected by what was the most civilised nation of the ancient world.

There is evidence to show that most of the religions of the ancient world were derived from a common origin, and had for their main idea either the worship of the powers of nature or as regarding nature as a theatre descriptive of divine things. The ancient vedic hymns of India were addressed to the powers of nature, and the fact that the different days of the week are to this day dedicated in English or French to different planets is evidence that the religions of the Gothic tribes coming from central Asia were derived from the same source. The most probable conjecture of the object of the Druidical circles of stones is that they were devoted to the worship of the heavenly bodies, and the name Baalbek, afterwards Heliopolis, shows that the worship of the sun dated from a very early period in Syria. That the religion of the Greeks and Romans owed much to the same source is well known, and we know from Herodotus that the Greeks regarded the Egyptian as a civilisation earlier than their own and to be greatly venerated. In Egypt it is certain from the monuments themselves and the representations on them that their early worship was derived from the phenomena of nature, the rise and setting of the sun and moon and stars, the waxing and waning of the moon, and so forth, and fortunately we have from Egyptian hieroglyphics a full description of what took place in each room of the temples, where staircases were provided leading up to the flat roofs, so that certain ceremonies might take place in full view of the heavenly bodies in honour of which the services were held.

When the Greeks and Romans successively conquered Egypt, and made it a province of their empires, no attempt was made to disturb their worship and religion, so similar in some respects to their own; in fact, the Egyptian deities were at once adopted as part of the State religion, and vast sums were spent in the restoration of the ancient temples evidently under the direction of the Egyptian priesthood, and, judging from the inscriptions, with the most scrupulous conservatism of the ancient plan and purpose. Probably no such splendid restorations exist as those of the Ptolemies of the ancient Temples of Edfu and Denderah, which have preserved to us in its simplest and complete form what may be regarded as the typical temple of the Egyptians as used for worship for a period of at least 4,000 years, if not more.

It is not certain where the Egyptians came from. Probably from their regarding the land of Punt (either in Arabia or at the extreme south-east of the Red Sea) as the Holy Land, they came from the east. Abydos has been called the cradle of Egypt, but the seat of the first settled monarchy appears to have been the great city of Memphis, just south of modern Cairo, and said to have been founded by Menes, the first historic king, about 4000 B.C. This city must have been one of the largest of the ancient world, and the ruins of an immense palace remained as late as the twelfth century A.D.; but, owing to the inundations of the Nile, nothing remains of it at the present day but a few earth-mounds and two colossal statues, which stood in front of the great Temple of Ptah, and the Pyramids and innumerable tombs built on the uplands west of the Nile, which formed the great cemetery of the city, and amongst which the famed Pyramids of Gizeh formed the chief. These are surrounded by whole streets of tombs, which are said by the Arabs to extend for two or three days' journey into the desert, and alone would give an idea of the vast populations in the valley of the Nile who were buried here. The inundations of the Nile have also destroyed almost every vestige of the large cities which once existed in the Delta, so that it is necessary to go 200 or 300 miles up the Nile before reaching extensive remains of temples. The whole valley of the Nile, including the river itself, would appear to have risen since the times of ancient Egypt, so that the Temples of Denderah and Edfu, which will be described in detail, are now some 30 ft. or 40 ft. below the level of the ground, and have had to be dug out quite recently for their complete examination, and are now under the care of the Government as ancient monuments. There are also extensive remains at Kom Ombos, Esneh, Philæ, and other places on the river. Some ruins which existed at the time of the great French expedition under Napoleon have now disappeared, but it is at ancient Thebes that an idea of the magnificence of ancient Egypt can be best obtained. The ruins of temples and buildings there exceed those left in the remainder of Egypt altogether, if we except the Pyramids, and are far more extensive than anything remaining either at Rome or Athens. The site of the ancient city, being mostly above the level of the inundation, has escaped the destruction that has fallen upon other cities.

Thebes dates from a high antiquity, and a few of the more ancient parts of its temples are from the times of the Eleventh Dynasty, about 2500 B.C.; but under the Pharaohs of the Nineteenth Dynasty (about 1400 B.C.), Seti I and Rameses II., &c., the chief seat of government was transferred from Memphis to Thebes, and the city was embellished with the magnificent temples of which the ruins now remain. The great group of Karnac alone is nearly a mile long and one-third of a mile wide, and comprises a whole assemblage of temples connected together by avenues of sphinxes. From this group there are remains of an avenue of sphinxes to the Temple of Luxor on the banks of the Nile, about one mile to the south, where are the ruins of one of the finest temples which remain. These are all built on the east bank of the river. On the west bank there is a series of temples, or rather mortuary buildings, erected by various Pharaohs to the memory of themselves and their ancestors; and further from the river, under the mountains containing the tombs of the kings and the vast cemetery of Thebes, was the mortuary temple, Deir el Bahari described in this room last year. These buildings are mostly far too complicated and elaborate to describe in the limits of a single paper. Moreover, they show in many instances a departure from the original and simple plan of the early temples dedicated to the gods. The monarchs of this period would seem to have been almost intoxicated by the grandeur of the empire and the extent of its foreign conquests, and the temples are covered with inscriptions of their own glorious doings, and, though the credit of them is all ascribed to the gods, the prevailing sentiment seems their own glorification. Probably no man in the world ever had more statues erected to his memory than Rameses II., and the cost of them would exceed many millions sterling of our money. This Rameses is generally supposed to be the Pharaoh of the Oppression, and to have shortly preceded the time of the Exodus.

In describing the ceremonies that took place at the temples, which were in the main theatrical exhibitions of the phenomena of nature, it is necessary to form some idea of Egyptian cosmogony. They imagined the world to be a vast plain suspended in space, of which Egypt, with the Nile running through it, was the centre, and by far the most important part, the nations round being comparatively barbarous and uncultivated. Below this plain was stretched out the plain of the nether world, with another Egypt and Nile almost the counterpart of those in this world; the sun and moon and heavenly bodies, after traversing above the world, descended in the west and passed back again over the plain of the nether world, rising again in the east. All the spirits of the departed went to the nether world, and those that were judged worthy of continuing life remained there with the same avocations and amusements that had occupied them in this world."

[The following were then illustrated on the screen:—A distant view of the great Pyramids at Gizeh, showing how they are elevated on a plateau above the general plain of the River Nile; a nearer view of the Pyramids, showing on one of them a portion of the old stone casing remaining; the colossal Sphinx, partly excavated, with the ruins of a small temple and altar between its paws: a view of a subterranean temple near this Sphinx, constructed of huge blocks of granite, supposed to date from the time of Chephren (about 3500 B.C.); the great step Pyramid of Sakkara, near the site of ancient Memphis, older than the Great Pyramid, and said to date from 4300 B.C. (B.M.); part of the interior of the Mausoleum of Sacred Bulls at Sakkara (each bull was buried in an enormous granite sarcophagus); a gigantic statue of Rameses II., which formerly stood in front of the Temple of Ptah at Memphis, and is one of the few remains of that vast city; and statues from the museum of Gizeh, which show the great excellence the Egyptians had obtained in the art of sculpture at a period almost antecedent to the date formerly given to the creation of the world; one of them a statue in wood of an inspector of

* See *Builder* for March 31 last.

workmen, or perhaps an architect, probably nearly 6,000 years old (Fourth Dynasty).]

"We must now journey some 300 miles up the Nile before we come to any considerable remains of a temple. I may just be allowed to state that travelling on the Nile is a most delightful way of spending a holiday at the time of year when I made the journey, viz., early in March, when the climate of Egypt is absolute perfection, day after day of splendid sunshine, with just enough fleecy cloud about to give variety, and the warm sun, tempered by a delicious wind from the north, refreshing and bracing. All combine to produce an effect like the finest summer weather in England, and this renewed day after day with absolute certainty. The dust from the desert, which is one of the great inconveniences of Egypt, does not affect us on the river, though now and then we see it whirling along like a waterspout of sand or pillar of cloud in the distance.

The river is also enlivened by the numerous dhows, or native boats, with their large triangular white sails scudding through the water at a fine rate before the north wind, sometimes even quicker than the steamer; the banks are picturesque, with groups of palm and sycamore trees, and here and there native villages; there are also occasional sugar factories with chimney stacks which remind one of an English town, and do not improve the landscape.

The prospect on the Nile from each side is bounded by the Arabian and Libyan mountains, sometimes rising in most picturesque forms and thrown out by the light and shadow of the brilliant sunshine. The colours at sunrise and sunset are magnificent, and one cannot wonder that the Egyptians derived their ideas of the divinity from the glorious orb traversing their country each day from east to west in such splendour, and followed at night by the moon and stars. But I must pass on to our first temple, which is at Denderah (see plan on wall).

On arrival at the landing-place, a ride of twenty minutes through fields brought us to the temple and the site of the ancient Egyptian town. We now have to descend a staircase to the level of the temple floor, the rubbish from which has been cleared out, and the building placed in charge of a keeper in the pay of the Government. This temple, as it actually stands, was rebuilt in the time of the Ptolemies, the decorations of which continued down to the time of the Roman Emperors, but the inscriptions show that it was a restoration of an older temple which stood at the same place from the very earliest times. One inscription says: 'The great building plan of Ant (Denderah) was found written in ancient characters on hide of the times of the successors of Horus.' Another inscription says that King Thothmes III. made a restoration of this monument found described in ancient characters of the time of King Khufu (the builder of the Great Pyramid of Gizeh). Thus it appears that the Egyptians regarded themselves as the keepers of the sacred plans of the religious buildings, which were handed down by writing and tradition from the most ancient times, and were not deviated from in any essential particular. We may therefore regard them as models of the ancient temples which existed from the earliest time, and it is interesting to notice many features in common between them and the Tabernacle erected by Moses by divine command and the Temples of Ezekiel and Herod, and also the temples of the Greeks and Romans. There is as much similarity in the plan and arrangement of the great temples of Egypt as there is between the different cathedrals of the Christian Church. This Temple of Denderah was dedicated to Hathor.

Egyptian mythology is complicated by the fact that, in various localities, different names are applied to the same idea. The fundamental principle seems to have been to regard the heavenly bodies and powers of nature as symbols of the attributes of the deity, and in most localities there is a divine trinity. First, there is the masculine or creative principle symbolised by the sun, and called Ra-Harmachis at Heliopolis, Amen-Ra at Thebes, and so on; and in the philosophical idea representing the powers of goodness and light as opposed to evil and darkness. Secondly, there is the feminine or receptive and maternal principle symbolised by the moon and stars, and called Isis, Hathor, Muth, and several other names; and in the philosophical idea representing truth and faith, which keep alive and preserve the powers of goodness in states of decline symbolised by the night. Finally, as the result of a marriage or union between these two, there follows the third principle, the new-born day, represented by the sun rising again and called Horus; and in the philosophical idea representing the resurrection and regeneration, and the dawn of a new era of religion and civilisation in the world. The ceremonies and processions which took place in the temples would appear to have been theatrical representations of what takes place in nature; each hour and day being symbolised as a separate deity, and the great event being the triumph of the sun over the powers of darkness and its bursting forth in renewed splendour at the opening of day.

'Hathor' literally means 'the house of Horus,' evidently the power which preserves and protects the youthful deity, that is, the rising sun, till the time for his rising in glory before the world. There was probably an entrance court before the Temple of Hathor at Denderah, but if so it has been destroyed, and now one enters directly into a hall, or porch, supported by twenty-four columns; this is the Hypostyle Hall, or Khent Hall—that is, Front Room. It is 143 ft. broad, 80 ft. deep, and about 50 ft. high. It is a most noble apartment of harmonious proportions, and at once strikes the beholder with its grandeur; the walls are decorated with reliefs recording the various Pharaohs who built or restored the temple; representing them as ascribing all to the gods and making their offering of the temple to them. The ceiling represents the firmament and stars; at each end is a figure of the goddess Nut, who represents the firmament of heaven in the form of a tall woman bending over and touching the ground with her hands as the firmament appears to bend over the earth: on other parts of the ceiling are representations of the signs of the Zodiac, with figures of the twelve gods of the hours of the night ascending on the east side and descending on the west side. The moon is also represented by fourteen divinities ascending steps—the fourteen days of the crescent moon; and fourteen divinities descending steps—the fourteen days of the waning moon. The twelve hours of the day are represented by twelve divinities, each in the sun's disc, sailing in boats across the vault of heaven.

Passing through this room, with its beautiful and massive columns covered with inscriptions, we proceed along the central axis of the temple into the Hall of the Appearance, so called because the statue of Hathor, the Golden-Rayed, was brought on festive occasions from the Holy of Holies in the rear into this hall to be exhibited to the people, who did not advance beyond the Front Room; this room is 45 ft. 6 in. square, and the ceiling is supported by six columns. The representations on the walls describe the ceremonies that the Pharaoh had to go through as chief priest before entering to worship the goddess: he enters the hall carrying a staff and covered with a long garment, preceded by a priest dressed in a panther's skin (the sign of a priest), who sprinkled incense on a burning censer; he lays his robe aside and bends before the image of Hathor; then he goes through the act of cleaving at the ground with a short plough—this means turning the first sod for the site of the temple; then he smites a blow with a hammer on a stone—this is laying the foundation stone; then he shapes the first brick for the enclosing walls; afterwards we see him before Hathor with a building tool in his hands, and he is said to utter this sentence: 'I have built the monument, the great one, as a perfect building to all eternity.' Thus the king himself was actually to commence the temple, which was supposed to be built under his immediate auspices on the old and sacred pattern as an offering to the gods.

There were three small rooms on each side of the Hall of Appearance; one of those on the left side was the temple laboratory, where the incense, oils, and ointments were prepared for the temple services, as the inscriptions thereon show. The Egyptians were so skilful in matters of this sort that the word chemistry is derived from Khem, the ancient name of the land of Egypt. The second room is called the 'assembly room,' and it is supposed the offerings were placed here on the festal days. The third room afforded a passage out of the temple. One room on the right, or west side, was called the 'silver room,' and contained the jewels and ornaments of the divine image and temple utensils of costly materials, as shown in the inscription, which gives the uses of the room. The second room formed an exit from the temple on that side. The third room formed a sort of anteroom to the staircase leading to the roof on that side.

Following the main axis of the temple, the next room is called the Hall of the Altar, immediately behind the Hall of the Appearance. On the left from this a small anteroom leads to a long straight staircase ascending to the roof. There is also a room on this side called the 'room of purification,' probably used in the preparations for festival ceremonies. On the other side is another staircase, of short flights, winding round a square with landings at the angles, and ascending to the roof. The inscriptions on these rooms and staircases refer to the great New Years Festival, on which occasion there was a solemn procession of the priests carrying images of the deity through the temple and afterwards to the roof, symbolising the union of the goddess Hathor with Ra—the sun—on this festival day, the first of the year; this is given in the usual symbolical language of the Egyptian myths, taken from astronomical events. The inscriptions relate that 'the goddess comes in her beautiful festival that her spirit may unite in the heavens with her father; she rests on her throne in the place of beholding the sun's disc when the bright one unites with the bright one'—that is, the sun with the moon. This procession is pictorially displayed on the walls of the staircase; the standards of the various gods and goddesses are shown carried along in the solemn procession with the king and queen of Egypt and priests and priestesses, and the shrines holding the sacred images. On the roof is a small temple, from which the rising sun or the moon and the stars could be seen, and which presumably formed the goal of the procession before proceeding down the other staircase. The next room in the centre of the temple axis behind the Hall of the Altar is called the Hall of the Cycle of the Gods, or the Middle Hall, and this is immediately in front of the cellar, adytum, or Holy of Holies. This sanctuary is surrounded by a passage round which are a series of small rooms used in the services of the temple. The room on the left of the Middle Hall is called the 'cloth room;' here were kept the sacred garments and perfumes; and the room on the right is the chief festal room. This opens into the two adjoining rooms, which together form a small separate temple like a side-chapel, one being open to the air as a court with a sanctuary behind it. At Edfu this is called 'the room for offering what is necessary,' and it was probably used for special or subordinate services like the side-chapel of a church. The sanctuary of this small temple is approached by seven steps, and is adorned by two columns in front. On the ceiling is a painting of the firmament with the tall woman leaning over and touching the earth with her hands and feet; the sun is represented as resting in her lap, his beams shining upon the head of Hathor, who is shown sitting on the Sun mountain. May this not mean the sun transferring his splendour during the night to the moon, or Hathor? The Holy of Holies, together with the other rooms round it, are called the 'hidden secret chambers.' The Holy of Holies was called 'the dwelling of the golden one,' and was the repository of the sacred boat or ark. This could only be entered by the ruler of Egypt as supreme pontiff, and by him only once a year, on the great Festival of the New Year, like the High Priest amongst the Jews (see Levit. xvi.). He is shown on the inscriptions breaking the seal of the door and going on towards the figure of the goddess and offering her homage. Of the eleven small rooms immediately surrounding the sanctuary the one at the back was called the 'dwelling of Hathor,' and was probably where her statue was kept; the next on the left was called the 'vase room,' and the next the 'sistrum room.' The first room on the right was called the 'restoration of the body,' and the next the 'birth room." The next is the 'Sokar room,' in which Osiris renewed his limbs; the next is called the 'union of the two lands.' These rooms refer to the myth of the sun god Osiris, afterwards Horus, whose enemies have been destroyed, who has conquered the powers of darkness, and who has then risen from the nether world with the assistance of Hathor or Isis. According to the myth, Typhon (who represents evil) had cut the body of Osiris in pieces and scattered it over Egypt, which

pieces were collected by Isis and finally restored to life.

Next to the dwelling of Hathor is 'the chamber of flames,' where the goddess is represented exterminating evil with fire; the next is called the 'throne room of Ra'—the sun—where the Pharaoh (who represented the deity on earth) is shown destroying a crocodile (evil) with his lance. On the west side are the 'rooms of purification' and the 'room of a necklace,' where the king is shown presenting a necklace to Hathor. In the thickness of the walls of the temple are twelve crypts or secret chambers in which, it is supposed, the treasures were kept, and the entrances to which were ingeniously concealed.

On the roof were six rooms, three on the east and three on the west side, devoted to the worship of the slain and risen Osiris, as shown by the inscriptions. In one of these was a curious representation of the Zodiac, now in the Bibliothèque Nationale at Paris.

I have passed by Abydos, where there are interesting mortuary buildings, with some of the most beautiful sculptures of Egypt, dating from the time of Seti I.; and shortly above Denderah we come to Thebes, with the great temples of Karnac and Luxor. It is quite impossible in the limits of one evening to describe these in detail, but I show a few slides relating to them."

[The following illustrations were shown on the screen:—The great hall at Denderah, with what are called the Hathor capitals; sculptures from Abydos; various photographs of the great temple at Karnac; the colonnades at Luxor; the colossal statues of Rameses between the columns at Luxor; the pylons and obelisk in front of Luxor Temple; and others.]

"Almost all the temples on the west bank of the river were mortuary buildings, the west or setting sun being devoted to the dead.

We next make a stop at Esneh, 484 miles above Cairo, where are the remains of the Hypostyle, or Front Room, corresponding with the similar apartment already described for Denderah; it is a very noble specimen, in excellent preservation. The size of the hall is 108 ft. by 52 ft. 6 in., and is supported by twenty-four columns 37 ft. high. There are high abaci over the capitals of the columns, on which rest the massive architraves, and again on these the roofing blocks, varying from 22 ft. to 26 ft. long and 6 ft. 6 in. wide. It is calculated that there are 110,000 cubic feet of sandstone in this hall alone, and the whole of the interior is covered with inscriptions. According to these the hall was founded not later than Thothmes III. (Eighteenth Dynasty) and afterwards rebuilt by the Ptolemies; it was dedicated to the ram-headed Khum-Ra, one of the representatives of the sun god, and signifying the union between the rising and setting sun. The signification of the name is 'The Uniting.' As usual, there are two deities associated with him, forming a trinity—in this case, Nebunt, a form of Isis, and Hirka, a form of Horus, the rising sun.

The hall is remarkable for the great beauty of the capitals of its columns, which differ from one another, but are not discordant. The sculptor has derived his inspiration from the lotus, palm, and other foliage; these are beautifully carved round the bells of the capitals; they are bound round with rings or cords carved in stone (annuli) between the capitals and the columns, all at the same height, and the inscriptions consist mostly of descriptions of the gifts and offerings to the temple.

A few miles above Esneh is Edfu, a little village in which stands the most complete specimen extant of an ancient Egyptian temple. The plan is almost the same as that at Denderah, with the addition of a large court surrounded by a colonnade in front of the temple, entered by a huge pylon or gateway, with two pyramidically-shaped massive towers, which originally formed the main entrance to all Egyptian temples. There is also a girdle or encircling wall going round the whole temple and forming an outer protection, which probably originally existed round most Egyptian temples. It is scarcely necessary to describe this one in detail, as the internal arrangements are so much like the one at Denderah. The pylons in front, or 'watch towers' as they are called in the inscriptions, are 100 ft. high; an easy staircase surrounded with good hewn stone in large blocks in the pylon ascends to the summit, from which in the evening light a magnificent view is obtained of the winding Nile, with its narrow fringe of cultivated land, bounded by the picturesque but barren mountains which border the valley and the desert beyond.

In front of the pylons are four vertical deep niches, in which were placed the higher flagstaffs, covered with copper, as the inscriptions tell us, 'to avert the storms of heaven'; in other words, they acted as lightning conductors as well as flagstaffs, another proof of the scientific attainments of the Egyptians. The rubbish of ages has so accumulated round these temples that the floors now appear sunk some 20 ft. or so below the general level of ground, but the temple itself has been cleared by the Government and exists in excellent preservation.

The open court in front of this temple (which is wanting in Denderah) is spacious and open to the sky, paved with flags and surrounded by thirty-two columns on the south or front, the east or west sides, forming a colonnade. The temple itself is sacred to Horus (the sun at his rising). The orientation is exactly the opposite to that at the Temple of Denderah, the front of which faces north, whereas this temple faces south; that is, it faces the position of the sun during the daytime, whereas the one at Denderah, dedicated to the gods and goddesses of night, faces the position of the sun in the nether world, according to Egyptian ideas during the night. The temple was rebuilt during the reigns of the Ptolemies, but the inscriptions inform us that it was carried out according to the plan of the great writing that fell from heaven to north of Memphis. It is further stated that the great hall was built according to the arrangements of temples written by Kherheb Imhotep, son of the god Ptah; this shows that the Egyptians in the arrangements of their temples rigidly adhered to the traditions handed down to them from antiquity and preserved amongst them in writing. As at Denderah, a history of this particular temple, and a description of the rooms and the uses to which they were put, is given in the inscriptions on the walls. The inscriptions also give a detailed account of the restoration of the temple, and of the great festival which took place at its opening and dedication, and how the king himself, along with the goddess Safekh (the goddess of sacred writing and history), laid the foundations of the adytum (the Holy of Holies), the starting point for determining its halls, and the part of the temple usually built first. The side chambers of the building were placed in proper order 'according to the directions of those acquainted with the rules; the sacred architects of the temple working with the lord of the papyrus writing.' From the foundation of the new temple to its completion and the festal entry of the deity B.C. 142 was a period of ninety-five years.

Following the front court, we come upon the Hypostyle Hall, or Front Room, which forms the first room at Denderah as it now stands. This hall contains, against the front wall and between the pillars, two little rooms, one on each side, like chapels, which we learn from the inscriptions were intended, the one on the left as an incense chamber to hold the incense and holy water required on religious festivals, and the one on the right a chamber or safe for the sacred rolls and books of the temple, a catalogue being given on the walls.

The ceiling of this hall is covered with astronomical representations; to the left are the first six hours of the night, and to the right the second six. Over the door the sun's disc is represented rising from the horizon with attendant deities, and below in an attitude of worship is the personification of the four senses; to the right the eye and ear symbolising sight and hearing, and to the left taste (a tongue) and reason. The planets are also portrayed with fourteen deities ascending steps representing the fourteen days of the waxing moon, and fourteen others descending to symbolise the fourteen days of the waning moon. There are also the representatives of the twelve months, and of the thirty days of each month.

The hall following the Front Room at Denderah (a temple sacred to the gods of the night) is called the Hall of the Appearance, and the next room the Hall of the Altar; then comes the Hall of the Cycle of the Gods. I suggest that this is because after the sun has run his course at night he appears in the hall to the worshippers in all his glory, Hathor being on such occasions called the Golden Beamed. and the sun goddess, and all the powers of heaven are, as it were, awake to their duties; but the corresponding rooms at the Temple of Horus (a god of day) at Edfu are called the Festal Hall and the Hall of the Repose of the Gods, which seem to indicate the refreshment and repose of the deities after the day's work is done. The description of the rooms round about the sanctuary is also somewhat different to those at Denderah; the one immediately behind the sanctuary is called the 'chief apartment,' 'the very secret place of the dispenser of rays,' and it is intimated that the goddesses are with him, and do not desert him; this seems to mean that the sun had set. Then came three rooms sacred to Osiris, that is, the sun in the nether world; then there is a room called the 'room of the spreading of wings,' and the destruction of Osiris's enemies is represented in the 'goal of millions,' that is, the nether world; these probably represent the sun or the god of light triumphant over the powers of darkness, and generally the resurrection.

On the inner side of the girdle wall, on the west side of the temple, is an interesting representation of Horus fighting with and overcoming his enemies, depicted by a hippopotamus; and it is represented in twenty-two scenes, the work being done with the assistance of the Pharaoh, who is the representative of the god on earth. In the first scene the king, standing on shore, attempts to transfix the hippopotamus with a spear, which turns its head on one side. Horus, with a javelin in his right hand and a chain in his left, and accompanied by Isis, attempts to do the same; afterwards Horus secures the hippopotamus with the chain, and transfixes it with his javelin. In some of the scenes the Pharaoh and the god and goddesses are presented in sailing boats and ships.

A few miles above Edfu the channel of the Nile contracts and passes through a chain of sandstone mountains, which are extensively quarried. Vast chasms are cut down through the mountains in every direction as if they had been sawn, the tool marks of some such instrument as a saw being plainly visible. These were the quarries of ancient Thebes, and extend for miles; and in some cases it looks, from the débris that is left, as if a whole mountain had been removed, leaving nothing but a detached mass of rock here and there. If no temples had remained, these quarries alone would bear witness to the enormous works carried out by the ancient Egyptians."

[Illustrations were here shown of the Temples of Esneh and Edfu; those of Edfu including a view of the entrance-court and front of the temple, showing the dwarf walls between the columns, behind which are the small chambers already described; the top of one of the staircases to the roof, with the procession of priests portrayed on the walls; and a bas-relief showing the Pharaoh cutting the first sod for the foundation of the temple.]

"Forty miles above Edfu the steamer was moored up to enable us to see the beautiful Temple Kôm Ombos. At this time of the year this temple stands out conspicuously above the river on a plateau, and is seen at a great distance in each direction from its being at a bend in the stream; but in the time of the inundation the waters approach very near the temple floor and have considerably undermined the foundations: the Government have spent a great deal of time and money in restoring and building a solid embankment on the side of the river to prevent further encroachment and destruction. The great portal looks very majestic in the evening light flanked by the remains of huge pylons on each side, and the temple building must have been a most imposing pile when complete, with grand flights of stairs down to the river. The peculiarity of the plan is that it is a double temple, with twin entrances side by side, and double suites of rooms throughout; the left half on entry is sacred to Horus, god of the day, and the right half to Sebek, the crocodile-headed god (a god of the night). Like the other temples we have been examining, there has been a restoration under the Ptolemies of an ancient building which stood on the site. Many parts of the temple are unfinished, and it is interesting to note on the ceiling and architraves of the Hypostyle Pronaos (the building now forming the central porch or entrance) the red lines dividing the surface into small squares which were used by the Egyptian sculptors for drawing out their figures and hieroglyphics, and by means of which the time-honoured proportions for the human body were

retained. Some of the tablets in the British Museum, dating back to the Twelfth Dynasty, may be found with these squares perceptible on the surface, and it is remarkable that the proportions in these later ones are slightly changed and agree with what are given by a Greek writer as the proportions for the figure.

A short distance further south brought us to the first cataract, the southern end of Egypt proper, near which are extensive granite quarries.

It is said that all the obelisks, granite blocks, and pillars found in Egypt come from these quarries; and the labour of working them and taking them down to the river and to their various destinations must have been almost incredible. In one place there is a huge obelisk, partly worked, lying on the ground half buried; this mass measures 11 ft. on the side, and quite 90 ft. can now be seen above the ground; it has marks across it as if the original or some subsequent workers, having given up the design of carrying away so huge a mass, had commenced to cut it into smaller blocks—a design they did not, however, carry out, so that to this day it remains to excite the wonder of travellers.

Above the cataract and quarries is the picturesque island of Philæ, crowned with temples, walls, and colonnades, set off with palm trees, and surrounded with rocky islands and granite blocks of fantastic shapes, red and purple above, and shiny black, looking almost metallic where reached by the waters of the inundation.

The banks of the river are picturesque, like the islands, and studded with noble palm trees. There is a large village on the left, and numerous picturesque Nile boating craft with their large triangular white sails impart life to the scene; here we engaged a boat and were rowed across to the south end of the island, whence long colonnades lead up to the celebrated Temple of Isis. This goddess was worshipped here from early times down to 540 A.D., after which there seems to have been a Christian village on the island, with a church and forum, and during this period the inscriptions and reliefs of the temple were plastered over to exorcise the evil spirits who were supposed to dwell there. The island is about a quarter of a mile long, and 150 yards broad; the Temple of Isis, with its accessories, occupies about half the length of the island. The temple was built at various times, and owes its charm not only to the gracefulness of its architecture, but also to the beauty of its situation, from which it has been called the 'Pearl of Egypt.' We first enter a detached porch with six columns on each side, dating from Nectanebus II. (fourth century B.C.). In front of this porch were two obelisks, one of which has been removed to England. From this porch we pass into the large colonnaded court in front of the temple; this is about 100 yards long, and is irregular in shape, but very picturesque: there were thirty-two columns on the west side running along by the river; the other side was never completed. The capitals are varied and very graceful, and in many cases vivid colouring remains. This court leads to the pylons, or main entrance to the temple proper, adorned with reliefs *en creux*—that is, sunk below the general surface — representing on the upper part Pharaoh sacrificing to Osiris and Isis, and to Isis and Horus, with battle scenes below. The pylons are 150 ft. wide and 60 ft. high, and command a beautiful bird's-eye view of the island. Formerly there were two lions and two obelisks before the central entrance, through which we enter into the inner peristyle of the temple proper. On the west of this was a temple called the Birth House; on the east is a colonnade with rooms behind in two stories; and to the nor this a second pylon before the inner rooms of the temple. The Birth House on the left or west is a complete small temple in itself, with a cella, in front of which are two vestibules and a colonnade around like a Greek temple. It is adorned with reliefs, describing the birth of Horus, or the new-born day; it also illustrates the education of the young Pharaoh or heir to the throne, who is supposed to be the representative of Horus on earth, and shows his birth, education, and instruction in the arts, such as music, &c. This building dates from the Greek Ptolemies.

The rooms on the right or east side of the court seem to have comprised the laboratory and library. On one is written, 'This is the library-room of the gracious Safekh'—the goddess of history—'for preserving the writings of the life-bestowing Isis.'

We now enter through the second pylon into the inner part of the temple, the first apartment of which is an elegant hypostyle consisting of an uncovered forecourt and a covered hall beyond, with four columns on each side. This is one of the most beautiful halls in Egypt, not only on account of its well-balanced proportions and admirable preservation, but especially on account of the beautiful and delicate colouring, which, being very little perished, conveys a better idea than almost any other example of what the gorgeous effect of these buildings must have been when their colours were fresh and unfaded. The columns are ornamented with palm branches and other foliage, which are coloured in brilliant blues, greens, and reds, not according to nature, but apparently according to an ancient canon of contrast of colours; and the whole effect is harmonious and resplendent in the extreme. The ceiling has the usual astronomical representations, and the interior rooms consist of the sanctuary, treasury, and minor apartments as in the other examples described. On the left or west side is a staircase which ascends to the celebrated 'Osiris room' on the roof of the temple, where are interesting reliefs illustrating the Egyptian doctrine of immortality. Osiris is first shown as a mummy on a bier, on which Hapi—the Nile—lets milk trickle from her breast, and Horus pours the water of life; afterwards there is represented the waking-up of Osiris into new life and his investiture with divinity as a ruler in the nether world.

A small building on the west of the temple of Isis contains on each side a curious representation of the source of the Nile. Below is a cave guarded by a serpent, in which sits the symbol of the Nile, a man with lotus flowers on his head with a woman's breast, pouring out water from two vases; above this is a group of rocks like the islands round Philæ, while on the top a vulture—Muth—and a hawk—Horus—keep watch.

On the east side of the island is an elegant little temple, or pavilion, which goes by the name of 'Pharaoh's bed,' with five columns on each side and four at each end, and half enclosed; it is a favourite subject with painters on account of its elegant form and suitability to the landscape, though the inscriptions within it are of no importance.

I have to thank Mr. Spiers for lending me the beautiful coloured drawing on the walls of the coloured hall above referred to, and also for the loan of many plans and photos; and also Mr. Francis Hooper, who has lent me some slides. I will now conclude by putting on the screen some photos from Philæ and neighbourhood. Thanks are also due to Mr. Francis Taylor for preparing the photographic slides."

[Some photographs from Philæ and its neighbourhood were then shown.]

The Chairman, in opening the discussion, said that the Architectural Association did not often indulge in papers of an antiquarian kind, but if any excuse was wanted for occasionally doing so it was to be found in such a paper on such a subject that had been brought before them, with such beautiful illustration by Mr. Alexander Payne that evening; there were one or two points which, in hearing such a paper, appealed to him very strongly. When one looked at the tremendous and stupendous works to which reference had been made, erected 6,000 or more years ago, one felt the smallness and comparative insignificance of much of our present work, and realised how great must have been the religious force and the mechanical power possessed by the builders in those days to put such work into their temples. Everything seemed to be concentrated on their temples and tombs. Imagine the ruins of London, say 4,000 years hence, how would they compare with these Egyptian ruins? What rubbish much of it would seem! A few foundation stones with the names of donors or persons of more or less importance, principally less, upon them, might possibly be found amidst a chaos of bricks and mortar. In the Egyptian work there seemed to be the whole history of a nation written on the walls, the architecture handing down the history of the nation and the religion and the traditions of the nation. One could not but be struck by the beautiful pictorial and poetic symbolism which seemed to run through every bit of Egyptian work, and which gave such a great interest to the study of the work.

Mr. J. Marshall, in the course of some remarks, said that the carriage of the materials used in the erection of the buildings presented great difficulties, and there existed long inscriptions in which the successful conveyance was spoken of much in the same way that a general would speak of having gained a great victory. It was considered a matter of great importance.

Dr. Weymouth asked if Mr. Payne had discovered any origin in Egyptian work of the prevailing plan of our English, and generally Christian, churches.

Mr. R. Phené Spiers, in proposing a vote of thanks to Mr. Payne, said that when he was travelling in Egypt the guide-books were not filled with the copious information now to be found in "Murray" and "Baedeker," and many of the mysteries which he saw in the temples, on the ceilings and walls, were unexplained in the books of those days, and he had to pass by them, admiring their colour and drawing; they would have been a great deal more interesting to him had he been able to understand their meaning. The Chairman's remarks about the ruins of London 4,000 years hence, compared with the ruins of Thebes, were interesting, because if Mr. Payne, in his capacity as district surveyor, were called upon to report on the condition of the walls which were built, say, 2000 B.C., and those built by the jerry builder in London, he would be compelled to say that the jerry-built walls were admirable, and would last for many years, while the bricks employed in the granaries of Rameses the Great were of such a nature that they would very quickly crumble away. As they did not, and the jerry-built walls did, that suggested a great difference in the climates. Those Ramesesene walls which existed now if exposed to a single day's rain in London would have been washed away at once. That was a most astonishing thing to remember. Shortly before he (the speaker) visited Philæ, Marriette Bey sent one of his sculptors to continue some carving work, four or five feet run, on one of the temples which had been left unfinished by the Cæsars. If he (the speaker) had not been told of this he would never have noticed the difference in sharpness between Marriette Bey's work and that previously existting, for the climate had had no effect on the old work. The reason for this was that there was no damp, and sun had no effect without rain. In consequence of the intense dryness, the stone did not crumble away, and remained as sharp as when first used. One point struck him very much when he visited these temples, viz., that although some of the rooms were absolutely black with darkness the walls were covered with the mysteries of the Egyptian religion. At what time were they carved, and with what light? It was difficult to understand how the walls of many of these absolutely dark rooms had been covered with beautiful sculpture. As was well known, a very serious accident occurred at Karnac some time ago, when eleven columns fell down. The disaster was partly due to the fact that every year when the Nile rises water comes up to the buildings. He had been told that not far away was a salt lake, and it was probable that salt water was carried to the foundations of the temple, and the salt water drying, the salt caused the lower portions of the columns to decay. Since the fall of the columns an examination had taken place, and it was seen that the foundations were not of a very good character. The columns rested on large stones, which were placed on comparatively small base stones, which had been placed very irregularly; on one side they were absent, and it was on that side that the columns had fallen. Why the disaster had occurred now, and not a long time ago, was that a great deal of clearance had recently taken place, robbing the columns of an additional support.

Mr. J. E. Newberry, who seconded the vote of thanks, said that Mr. Payne mentioned the wooden statue in the museum at Gizeh. It was made of sycamore wood, and it might be interesting to know that there is a good cast of it in the British Museum. The idea of the trinity mentioned by Mr. Payne struck him as being very fine, and it seemed to have considerable suggestiveness in it. With regard to the date of the foundation of Thebes, a tomb had been discovered there as early as the Sixth Dynasty, but it was in the Eighteenth (about 1600 B.C.) that Thebes became the capital of Egypt and under the Thothmes and Queen Hatasu many of the finest temples were erected. From an architect's point of view it was interesting to note that before and up to the Eighteenth Dynasty most of the build-

ings were constructed of limestone which was obtained from the hills on the west, and is a very beautiful material almost like marble. It allowed the artist to carve very delicate bas-reliefs upon it. The bas-reliefs from Abydos were also, he thought, of limestone. In later times, when limestone was found to be a treacherous material, sandstone was used. In studying the hieroglyphics and bas-reliefs, it was curious to notice the difference in the treatment of the materials. The sculptures in the sandstone were just cut down and then modelled, whereas in the limestone (the earlier ones) the whole of the background was sunk, and the figure left in very slight relief, giving a beautiful effect. As to the Orientation of the temples, Sir Norman Lockyer divided them into solar temples and stellar temples—the solar ones facing approximately east and west, so that the sun could enter at sunrise or sunset; and Sir Norman Lockyer thought it possible, by finding out the exact bearing of the axis of the temple, to discover its date from astronomical data.

Mr. Percy Newberry said he had resided at Thebes five or six years, and he endorsed what Mr. Spiers had said about the extraordinary dryness of the climate of Egypt. Some years ago he had discovered a number of garlands, some 2,000 years old, made of flowers, which were in a perfect state of preservation, and fifteen years ago Professor Flinders Petrie discovered garlands of roses. So perfect was their state of preservation that the rosebuds when put in warm water, gradually opened, and one saw inside the stamens, &c., of the flower. The colour in some was in a nearly perfect state. These wreaths could now be seen at Kew, in the museum just opposite the palm-house. To realise properly what the temples once looked like, one had to remember that gardens were laid out round them. Three or four years ago he had found at Thebes the plan of the garden of Karnac, and he was about to bring out a little book on the history of the gardens of the ancient world in which that would be illustrated. There was a garden round the temple at Tel el Amarna, some distance north of Denderah. Then at Deir el Bahari there were the actual trunks of the trees, from which could be restored the whole landscape garden of the temple. Mr. Payne said that the mortuary temples, &c., were generally on the west bank of the Nile. That was not quite correct, many of the cemeteries, tombs, and temples being on the other side. Professor Petrie, six years ago, found the tombs of the kings of the First Dynasty at Abydos among the rubbish left by a Frenchman, who had been working on the site for a long time, and who was supposed to have cleared the place. This same Frenchman found a large number of pots at Abydos, and was asked what he proposed to do with them. He said he should break them up, and though an offer was made to pack and send them to the museums of Europe, they were refused his on the ground that his own collection would in that way lose in value, the pots were all smashed. Since then English inspectors had been appointed, who would prevent such things happening in future. What was Mr. Payne's authority for saying that the flagstaffs of the temples were covered with copper? Obelisks were capped with this material "so as to flash the sun's rays." Mr. Spiers mentioned the difficulty the Egyptians must have had in doing work in dark chambers. He (the speaker) believed that a series of reflectors was used to transmit the sun's rays into the dark places. He had worked in the tombs of the kings himself by means of reflectors in this way.

Mr. A. Bolton said that, thanks to the modern fast steamers, one could nowadays get out to Egypt and back, and even prolong the journey as far up the country as Philæ, in about six weeks. Mr. Payne had given them a very good idea of what there was to be seen going up the river, and had incidentally given some good descriptions of the scenery. The fact was that in the journey up the river there were days of great interest followed by long and occasionally uninteresting intervals. The picturesqueness of the Nile scenery depended to a large extent on the relative approach of the mountains on either bank. At the First Cataract the hills came so close that it was like going through a pass; while in other parts the flat, fertile plain extended a long way into the distance. Philæ was the chief point of the expedition from the popular picturesque point of view. It was a little gem of a temple on an island in the river, in appearance surrounded by mountains on all sides. The engineers were to build their great embankment, so that instead of standing on the island cliff as a basement the temple of Philæ would be in a lake, and the picturesqueness of it would be destroyed to the extent that all the underneath part would be hidden. The original idea was that the embankment would be so high that at certain seasons the temple would be actually under water, but fortunately that had been put a stop to. Architects, he ventured to suggest, did not learn their Egyptian architecture from the right point of view. It was, in a sense, no use talking about Denderah, Edfu, Esneh, &c., for that was like talking about Gothic architecture and illustrating it by the works of the Gothic revival. The real works of the style were built centuries before, and the Ptolemaic buildings were only hashes up of the genuine early art. The most interesting, perhaps, of these temples which they were able to visit was that at Deir el Bahari, which was a most extraordinary work. The temple consisted of a series of terraces rising up to the face of a great mountain. There were porticos of many-sided columns, and, despite the Egyptian cornice, the general effect was that of Greek Doric work. On the back wall of these colonnades were wonderful low-relief sculptures. Any student going to Egypt should give his attention to the earlier work, and leave aside the later work of the imperial Rameses. In studying Egyptian architecture one must understand the religion. Great outdoor processions took place from temple to temple, and services even were held in the open air on the flat roofs, where there were shrines. This open-air character of their religion influenced their architecture very much.

The vote of thanks having been put and heartily agreed to,

Mr. Payne, in the course of a brief reply, said, in answer to Dr. Weymouth, that he did not think that much of the Christian worship or ceremonies could be derived from the Egyptian religion; there were too many steps between; and when Christianity came in it was believed that all religion that had preceded it was bad, except the Jewish; though the Christians did incorporate many of the old Pagan ceremonies in their festivals. Jerry building might perhaps be applied to the temporary granaries built under Rameses II. of unburnt bricks, but certainly could not be applied to any of the temples. Most of the buildings he had studied in Egypt were so massive in character that he never came across such work in London. As to flagstaffs being coated with copper, what he had read was a quotation from one of the inscriptions, and it seemed to be a very clear description of a lightning conductor. All the cemetery buildings he saw were on the west side of the Nile. As to the monotony of the journey up the Nile that was very much a thing of the past, seeing that one could travel so many miles by rail and could break the journey and go by boat in order to see the interesting points. It seemed to him that nothing could be more pleasant and interesting than the part of the journey he took by steamboat on the river.

Election of Officers and Votes of Thanks.

The report of the scrutineers appointed to examine the voting papers in the election of officers for next session was then read. The following is the result of the election, viz.:—

President, Mr. W. H. Seth-Smith.

Vice-Presidents, Messrs. W. A. Pite and R. Elsey Smith.

Committee, Messrs. G. H. Fellowes Prynne, H. T. Hare, A. T. Bolton, H. A. Satchell, F. G. F. Hooper, A. W. Forsyth, Matt Garbutt, A. H. Hart, A. B. Mitchell, and E. H. Sim.

Hon. Treasurer, Mr. Hampden W. Pratt.

Hon. Librarian, Mr. Arthur Flower.

Hon. Secretaries, Messrs. G. B. Carvill and R. S. Balfour.

Mr. W. H. Seth-Smith then proposed a vote of thanks to the retiring President, Mr. G. H. Fellowes Prynne. He said he felt a difficulty in saying anything which would adequately express his feelings and the feelings of the members of the Association. All of them would agree that in every way Mr. Prynne had carried out the duties of a somewhat responsible position in a splendid manner. It would be difficult to say how many speeches Mr. Prynne had made during his term of office, but those speeches were always worth listening to on account of Mr. Prynne's eloquence; his artistic ability they were all conscious of, and his charming churches attested his ability as an architect. Mr. Prynne's business capacity was wonderful, and his endurance had been very great during the two years that he had been their President, for he had attended every committee meeting of the Association during that time, and altogether about 160 or 170 meetings of the Association. Mr. Prynne had shown admirable tact and in every way the society had prospered, especially financially and in membership, during his presidency. The Association had given recognition to Mr. Prynne's exceptional service by twice electing him President, and that was the highest honour they could give any man.

Mr. Bolton seconded the vote of thanks. That they had had a most energetic President would not be disputed by any one, and the Association had undoubtedly prospered during his years of office. As had been said, to appoint their President for a second year was an honour rarely bestowed. Mr. Prynne brought a wonderful amount of enthusiasm to bear upon everything he undertook, and as President he had always endeavoured to impress his own enthusiasm upon those around him.

The vote of thanks having been very warmly agreed to,

Mr. Prynne, in response, said that by having his heart thoroughly in every detail of the work of the Association it had been in every way a pleasurable time to him, and he hoped that any enthusiasm he had, had to a certain extent inspired enthusiasm in others. He believed most fully that one's aim should be to get enthusiasm for any object one had in view, and no object could be higher than that of helping others in the educational work of the noble art of architecture. But the work of the President of such an Association depended on the officers he had under him, and he had been particularly fortunate in that respect, for in Messrs. Carvill & Balfour, their hon. secretaries, he had had true supporters, and need he add that the secretary, Mr. Driver, had also been of enormous help? He therefore had great pleasure in proposing a vote of thanks both to the hon. secretaries and Mr. Driver.

The motion having been agreed to, and Mr. Carvill having suitably replied,

Mr. Clapham proposed a vote of thanks to the hon. treasurer, Mr. Hampden W. Pratt; the hon. librarian, Mr. Arthur Flower; the assistant librarians; and the editor of the *Notes*, Mr. Beresford Pite.

The Chairman said that the *Notes* had greatly improved under the five years' editorship of Mr. Pite, and it was therefore a matter of real regret that Mr. Pite was about to retire from that position. They must all desire to convey their most warm thanks to Mr. Pite for his five years' service as editor of their journal.

The vote of thanks was then heartily agreed to, and Mr. Seth-Smith announced that Mr. Prynne had kindly undertaken to act as editor of the *Notes*, and Mr. Satchell as sub-editor.

A vote of thanks to the scrutineers, Messrs. C. H. Brodie, A. Smithers, W. A. Jeckells, and A. Symon, brought the proceedings to a close.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

Ancient Lights.—The Council have communicated with the Surveyors' Institution in accordance with the resolution passed at the general meeting of April 9, and have requested that body to appoint a Committee of three to meet a Committee of the Royal Institute, consisting of Mr. E. A. Gruning, Vice-President, Mr. J. Douglass Mathews, and Professor T. Roger Smith, so as to form a joint Committee who may take such steps as may be necessary to secure an amendment in the law of ancient lights. Further, the Council suggested that this Committee should add to its number one or more legal members of either body.

The Annual Dinner.—The annual dinner will be held on Friday, June 22, at the Whitehall Rooms, Hôtel Métropole. H.R.H. the Duke of Cambridge will honour the Institute with his presence on the occasion, other distinguished guests being His Grace the Archbishop of Canterbury and the Rt. Hon. the Lord Mayor.

The Conversazione.—A conversazione will be held on Tuesday, June 19, at Guildhall, by the kind permission of the Corporation of the City of London.

The Architectural Congress.—It is hoped that

a full programme of the Congress will be published in the next number of the journal.

New Nominations to the Council.—The following further nomination to the division of the Council representing Allied Societies has been made by the Council, the nominee having recently been elected President of the Bristol Society of Architects: Frank William Wills.

The following nomination to the Council has been made by Fellows and Associates conformably with By-law 30, viz.: Sidney Robert James Smith.

New Nomination to the Art Committee.—The following nomination to the Art Standing Committee has been made by Fellows and Associates under By-law 49, viz.: William Arthur Webb.

Professional Advertising.—The question of professional advertising having been considered by the Council, they particularly desire to direct the attention of members to the following resolutions recently passed by them:—

1. That it is not derogatory to the profession for an architect to sign his buildings in an unostentatious manner, similar to that adopted by painters and sculptors.
2. That it is undesirable for architects to place their names on boards or hoardings in front of buildings during course of construction, for purposes of self-advertisement.

The late William Hepper.—Mr. William Hepper, of York, who died on Friday the 4th inst. in his fiftieth year, had only recently joined the Institute, having been elected a Fellow in January last year, in accordance with the unanimous recommendation of the Council of the Allied Society at York. Mr. Hepper was one of the five architects who founded the York Architectural Society in 1882. He had been hon. secretary and treasurer of the Society, and had occupied its presidential chair. He was the surviving partner of Messrs. Fisher & Hepper (formerly Gould & Fisher), and had carried out several ecclesiastical works, notably St. Maurice, York, alterations to Holy Trinity, Micklegate, and All Saints', Pavement. He also erected numerous villas in the neighbourhood of York, and carried out alterations and improvements to the grand stand and enclosures for the York Race Committee.

The Architects' Benevolent Society.—With regard to the mention of the Architects' Benevolent Society in the discussion on the annual report, the Council desire to call attention to the fact that in former years every new member was called upon to make a donation of two guineas to the Society. Though this rule has long been cancelled, the Council hope that new members, in recognition of the immense value of the Architects' Benevolent Society to the profession, will make such a donation as lies within their power on their joining the Institute.—*R.I.B.A. Journal.*

THE SANITARY INSTITUTE:

ANNUAL DINNER.

THE annual dinner of the Sanitary Institute took place on Friday in the Royal Venetian Chamber, Holborn Restaurant. H.R.H. the Duke of Cambridge, the President of the Institute, presided, and among those present were the Bishop of London, the Earl of Stamford, Rear-Admiral A. A. FitzGeorge, Sir Francis Sharp Powell, Sir Joseph Fayrer, Sir W. H. Preece, K.C.B.; Surgeon-General J. Jameson, C.B. (Director-General A.M.D.); Lieut.-Colonel A. S. Jones, V.C.; Alderman W. M. Dickinson, Professor W. H. Corfield, &c.

The Bishop of London, in proposiag "The Naval and Military Forces of the Empire," said the Sanitary Institute was connected with the army in many ways, and many of its members had also been connected with the military service. There was much to learn from a sanitary point of view in the conduct of a campaign, and many sanitary problems arose. The reports showed an excellent sanitary condition with the forces, and showed that the great service which had been rendered by this Institute was not thrown away in times of emergency.

Director-General J. Jameson replied.

Sir William Preece proposed "The Houses of Parliament," alluding especially to the splendid service which was carried out on committees.

The Earl of Stamford replied for the House Lords.

Mr. T. W. Russell, in responding for the House of Commons, said that two years ago when speaking at an annual dinner of this Institute, he referred to the Vaccination Bill, which was then passing through Parliament. The measure was of great interest to them, and he was told that he would lose 50,000 votes if he went on with it. The Bill was passed, and he could now say as one of the chiefs of the department which administered it that it was a most pronounced success. He now proposed to deal with the question of the better housing of the working classes. It was not necessary in an assemblage like this to refer to the immense importance of this subject. If things were in this country as they ought to be, it would be far and away the most important question. Happily it was removed from all party strife, and it could not hardly be made a party question. Whilst it was being said—and said by almost every speaker on both sides of the House of Commons the previous night—that the Government Bill was defective, and it did not go to the root of the matter—this could be admitted—but it met a great and pressing need. Talk of going to the root of the matter! the root was much deeper than politicians knew; it was not only a matter of model dwellings, but of model people, and they could not make people model by bricks and mortar. What was the crying need of London at the present moment with regard to housing of the poor? It was not, as some people thought, the enforcement of the present law by local authorities, although that was very important and was grossly neglected, but the consideration which weighed upon local authorities was the probability that if they rigidly enforced the present law in London it might lead to a result which would startle humanity. They could not turn people out of houses by the tens of thousands without having some other accommodation for them. It was not actually the enforcement of the law that was wanted; the need was space-room to live. The London County Council were carrying out a great work amid tremendous difficulties, and they deserved the credit and encouragement of the citizens of London. It was not possible to find space in this crowded metropolis—the few open spaces must not be touched because they were the lungs of London—and, therefore, the authorities must provide dwellings outside, and that was exactly what the Government proposed to give the Council power to do. It might be said that this only touched the fringe of the question, but it remedied a great evil and a great oversight in the legislation of the past. With regard to the clearing of insanitary areas for the purpose of erecting workmen's dwellings there was legislation in galore, but the cost stood in the way. Such enormous sums had to be paid for compensation that in the end the rent was more than the working man could afford to pay. This difficulty would have to be met by an entire change in the procedure. A general election could not be far off and one of the great issues upon which it would be fought would be this housing question.

The Duke of Cambridge proposed "The Sanitary Institute," which he said had been established about twenty-six years. It's progress had been very marked, and it had, indeed, kept pace with the increase in population. We could not have continued to have lived on in the same ignorant state as was prevalent twenty-six years ago; with increased population came greater demands for sanitary reform, and happily this had been provided. The Institute members and associates now numbered 3,400, and the total income last year was 6,218*l.* No less than 371 meetings had been held during the year, which had been attended by 9,464 persons, while over 45,500 had visited the museum of the Institute.

Professor Corfield, the Vice-President, in reply, said that when the Institute was first formed the meetings were held in a small room at Spring-gardens, which was approached by a narrow staircase. Now they had much better and larger premises and a museum, which had been greatly supported by the Duke of Cambridge. Examinations were held in London and provincial centres, and arrangements were being made for one to take place this year at Sydney.

The proceedings concluded by the usual toast to the Chairman.

ADDITIONS TO REREDOS, CROSTHWAITE CHURCH, CUMBERLAND.—Two carved statuettes, of English oak, representing St. Kentigern and St. Herbert, have been added to the reredos in Crosthwaite Church. The figures were the work of Messrs. Harry Hems & Sons.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday afternoon at the County Hall, Spring-gardens, Alderman W. H. Dickinson, Chairman, presiding.

Loans.—On the recommendation of the Finance Committee it was agreed to lend the Kensington Vestry 20,300*l.* for wood and asphalt paving works, the Bermondsey Vestry 1,590*l.* for paving works, and the St. Saviour's District Board 5,000*l.* for the same purpose.

Main Drainage Extension: Northern Outfall Sewer.—The Main Drainage Committee recommended and it was agreed, that the tender of Messrs. John Mowlem & Co., amounting to 95,885*l.* 13*s.* 2*d.*, for the construction of section A (commencing at a point about 150 ft. west of the East London Cemetery bridge and extending for a length of about 5,472 ft. towards the outfall works at Barking) of the two additional lines of outfall sewers between the Abbey Mills pumping-station and the Barking outfall be accepted.

Theatres, &c.—The following applications under the Metropolis Management and Building Acts Amendment Act, 1878, were, on the recommendation of the Theatres and Music Halls Committee, agreed to on certain conditions:—

Pay-box in connexion with the gigantic wheel at the London Exhibitions, Earl's-court (Mr. A. O. Collard).

The staging to be erected for the new panorama in the existing building in the Western gardens at the London Exhibitions (Mr. A. O. Collard).

Two side-shows which will occupy the space formerly known as the long bar in Elysia, at the London Exhibitions (Mr. A. O. Collard).

The seating arrangements for the cinematograph show in a building in Elysia at the London Exhibitions (Mr. A. O. Collard).

Accommodation for the Soudanese Dinka workers at the London Exhibitions (Mr. A. O. Collard).

A building to be known as Bechstein Hall and to be erected in Wigmore-street (Mr. T. E. Collcutt).

An alteration to the entrance vestibule at the London Hippodrome, Cranbourn-street (Mr. F. Matcham).

National Bazaar which it is proposed to hold at the Royal Palace Hotel, Kensington, on May 24th, 25th, and 26th, in aid of the war funds (Mr. H. A. Legg).

New baths and washhouses which are being erected in Prince of Wales-road, Kentish Town, with a view to a music licence being obtained for the men's first-class swimming bath (Mr. C. H. Barrett). This bath can be turned into a hall 115 ft. 6 in. long and 50 ft. wide, and will afford seating accommodation for 737 persons on the ground floor and 304 in the gallery. It is separated from the rest of the premises by fire-resisting construction.

Alterations to the Shoreditch Town Hall (Mr. W. G. Hunt).

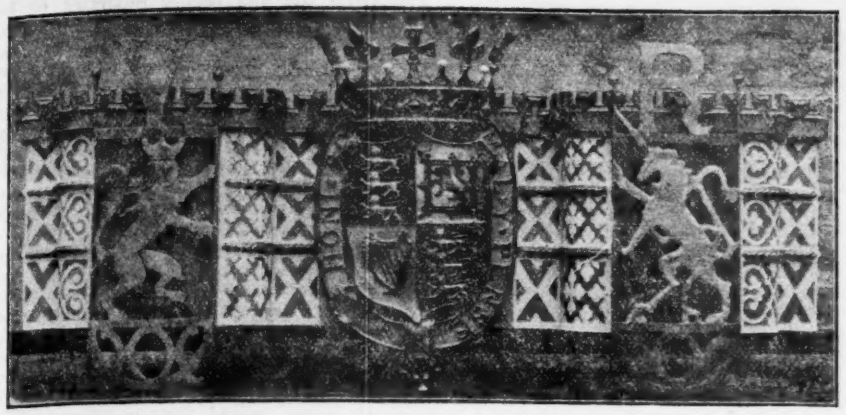
Alterations to the Tivoli Music Hall, Strand (Mr. W. Emden).

Rain Gauges in Wales and the Thames Valley.—On the recommendation of the Water Committee, it was agreed that the Water Committee be authorised to arrange with Mr. H. Sowerby Wallis for a continuance of observations of rainfall in Wales and in the Thames Valley, at an expenditure of 330*l.* per annum for the former and 75*l.* per annum for the latter.

Horton Asylum.—The Asylums Committee reported that they had accepted the tender and scheme of Messrs. J. & F. May, amounting to 3,501*l.*, for the cooking apparatus and baking machinery in connexion with this asylum.

Proceedings in Respect of Show-case on the Forecourt of Premises in Waldram-road, Forest Hill.—The Building Act Committee submitted the following report in reference to this matter.

"We reported on February 27, 1900, that a Divisional Court had allowed the appeal of the Council against the decision of a magistrate at the Greenwich police-court in respect of a show-case erected on the forecourt of the premises of the Royal Osborne Cycle Works, Waldram-road, Forest Hill. The magistrate held that the show-case, which was constructed of wood and glass, fixed on wheels, and used for the display of bicycles and cycling accessories, was not a 'structure' within the meaning of Part VII. of the London Building Act, 1894. The Divisional Court allowed the Council's appeal and remitted the case to the magistrate for further consideration, as they were not sure whether he had



Lead Rainwater-head, Royal Pavilion, Paris Exhibition. Made by Mr. W. Dodds.

found as a fact that the structure was merely a show-case, and the Court further expressed the opinion that, if they had the matter entirely open to them, they would have found, rather as a matter of fact than of law, that the structure in question was a 'structure' within the meaning of the said section of the Act. The case was re-heard at the Greenwich police-court on April 28, when the magistrate stated that, notwithstanding the opinion of the Divisional Court, he was still of opinion that the structure in question was merely a show-case and not a 'structure' within the meaning of the Act, and he accordingly dismissed the summons and increased the costs which he had previously allowed against the Council from 5*l.* 5s. to 8*l.* 8s."

Fire Alarms for Telephone Messages.—The Fire Brigade Committee recommended and it was agreed that all fire-alarm posts in London now rented of the Post Office and all fire-alarm posts that may yet be rented be adapted for the transmission of telephone messages; that the Council do accept the offer of the Post Office to fit such posts with microphones and plug-holes for telephones, and to provide plug-holes in the corresponding indicators in the fire-stations, for an annual rent of 10s. 6d. for each post already fixed, and 10s. for each new post.

Post Office Work, Victoria Embankment.—The Highways Committee recommended, and it was agreed, that the Council do accede to the application, dated May 4, 1900, on behalf of the Postmaster-General, for permission to lay conduits along the Victoria Embankment between Somerset House and the Brunel statue, and to construct manholes in connexion therewith.

The Council, having transacted other business, adjourned.

RAINWATER SPOUT HEAD.

THE lead spout head shown here was made by Mr. William Dodds, for the Royal Pavilion at the Paris Exhibition. It is decorated with painting and gilding, and is a good specimen of ornamental treatment of a spout head.

THE SURVEYORS' INSTITUTION:

PROFESSIONAL EXAMINATIONS, 1900.

THE following Student Candidates have passed the Examination for the Professional Associateship:—

D. A. Bartlett-Morle, London; W. R. Bingham, Forest Hill; H. K. Blyth, Cotham, Bristol; *H. C. Brierley, Troy, Monmouth; G. J. Bruzaud, London; W. Burman, Kiverton Park, near Sheffield; S. J. Chesterton, London; G. H. Cope, Broxton, Chester; C. H. Cramphorn, Chatham; W. R. Davidge, Teddington; J. G. M. Davies, Skelton, near Penrith; A. H. Delischaft, Highbury, N.; R. Dudley, Neath; J. W. Earle, Woolton; R. L. Ellis, London; H. V. Fletcher, Tonbridge; W. Foster, London; W. Fox, Bournemouth; W. S. Freuer, London and King's Lynn; F. A. S. Goodbody, Bristol; C. A. Hall, London; †H. S. Hancock, jun., St. Austell, Cornwall; W. W. R. Harlow, Islington, N.; H. G. Heal, Southsea; S. W. Hider, Stroud Green, N.; J. H. Hinchcliffe, Leeds; A. E. Hooper, Andover, Hants; W. C. Houghton, Woodford; A. B. Howes, Balham, S.W.; F. J. Johnson, Erith; H. D. Jonas, Whyteleafe, Surrey; A. B. Jones, London; A. V. Kislingbury, Finchley, N.; F. C. Knibb, London; L. Lanham, Dulwich Village, S.E.; H. Lisney, Sydenham, S.E.; W. S. Mackintosh, Kingston-on-Thames; H. E. Perks, Bedford; P. S. Pitt, Cambridge; J. A. Robinson, Kirkby Lonsdale; P. Schofield, Preston; E. J. Stead, Preston; A. P. Stockings, North Finchley, N.; C. F. Stone, Wigton; F. E. Strudwick, Bromley, Kent; W. H. Taylor, Nottingham; A. Timbrell, Tavistock; J. R. Tonson-Rye, Crookstown, County Cork; V. Turner, Wakefield; T. B. Wacher, Canterbury; L. M. Walton, Bexley; J. G. Withycombe, St. Albans; K. J. Young, Brixton; H. Parker, Buxton; G. L. Perrins, Preston; G. Pinson, Solihull; W. Plant, Leicester; A. C. R. Pole, Basingstoke; E. S. Pugh, Wolverhampton; H. V. Raffety, High Wycombe; P. C. Raffety, Birmingham; J. Roberts, Wales, Aberystwith; E. W. Saunders, Stroud Green, N.; E. G. Shettle, Balham, S.W.; J. E. Thorold, Grantham; T. E. Tiffin, West Hartlepool; R. S. Townly, Hastings; A. R. Upsdale, Forest Gate, E.; F. L. M. Walsh, Streatham Hill, S.W.; T. J. Walter, Bournemouth; F. Waters, Norwich; S. H. West, Ealing, W.; E. J. Whatley, Balham, S.W.; *M L. Wheldon, York; B. W. White, Stamford Hill, N.; G. J. Whitten, Tenby; R. E. H. Williams, Enfield Wash, N.

Irish Candidates.

C. J. Bourchier, Tullamore; E. A. Gibbon, Waterford; H. P. Stewart, Dublin.

Scottish Candidate.

J. Mather, Brodick, Arran, N.B.

The following Non-Student Candidates have also passed the examination for the Professional Associateship:—

H. H. Arnold, Norwich; E. J. S. Banks, London; H. P. Basley, Bickley; A. E. Baylis, Canton, Cardiff; T. C. P. Beasley, Grantham; H. A. Bettger, Cricklewood, N.W.; C. W. R. Blatherwick, Wye, Kent; T. C. Bliss, Ealing, W.; C. S. Brimacombe, Balham, S.W.; E. G. Browning, Forest Gate, E.; A. Bryan, Nuneaton; H. W Bully, Exeter; H. Burr, Rushden; M. T. Charles, Pelsall Hall, near Walsall; E. S. Clarke, London; R. L. Clegg, London; T. H. G. Clunn, Bath; H. A. W. Cobb, London; W. J. Cochrane, Hetton-le-Hole; F. C. Cook, Nuneaton; Cooke-Yarborough, Doncaster; G. A. Cooper, Brixton, S.W.; J. R. Corbett, Greenheys, Manchester; H. Crockatt, Llandudno; F. V. Cullen, London; C. A. Daubney, Peckham, S.E.; H. H. Dunstall, Pimlico, S.W.; R. M. Evans, Hanley; W. H. Foster, Litherland, near Liverpool; E. Fox, Bournemouth; H. Gale, Goring-on-Thames; S. J. Goodliffe, Cambridge; R. T. Grove, Harpenden; A. W. Hall, Muswell-hill, N.; F. T. B. Hewitt, Market Harborough; H. N. Hilliard, Writtle, Chelmsford; R. F. Hindmarsh, Newcastle-on-Tyne; F. W. Hipsley, Sutton Coldfield; H. Kaye, Sheffield; A. R. Kelly, London; N. B. Kemsley, Woodford; G. F. Lawley, London; V. S. Leigh, Hackney, N.E.; C. Living, Jun., Plaistow; L. Maggs, Brixton, S.W.; J. P. Martin, Brighton; A. E. Mills, Wimbledon; D. Mills, Ipswich; E. A. D. Morgan, St. Asaph, North Wales; W. P. Newman, London.

The following Professional Associates have passed the Fellowship Examination in Division IV.:—

H. H. Addiscott, Stoke Newington, N.; S. Arno, South Hackney, N.E.; H. B. Baverstock, Godalming; F. J. L. Birch, Melplash; C. J. B. Bridgewater, London; H. H. P. Burgess, Brondesbury, N.W.; H. F. Carr, Waltham Abbey; F. S. Chesterton, London; R. H. Chichester, Market Drayton; J. T. Cole, Torquay; W. S. Cowper, Tunstall, Sittingbourne; G. A. Cutler, Lewisham-hill, S.E.; G. C. Dawson, Nuneaton; D. O. Dunlop, Manchester; A. R. Ellis, Shalford; H. Goadby, Twickenham; A. Goodman, Clapton Common, N.E.; J. E. Gripper, Battle; T. W. A. Hayward, Sudbury; O. J. Healing, Finchley, N.; H. Hinks, Croydon; T. Hood, Halstead; A. E. Hope, Forest-gate, E.; Fitz-Laurence P. D. Jennings, Bournemouth; R. Johnston, London; D. P. Jones, Llandaff; E. F. J. Kirby, Liverpool; J. W. Kirk, Westminster, S.W.; A. T. Latham, South Norwood, S.E.; W. B. Leather, Leeds; A. D. Lomas, Manchester; D. Luker, Ealing, W.; D. S. Matthews, London; E. F. Mumby, Upper Tooting, S.W.; A. G. Nockolds, Saffron Walden; R. F. Parry, Bishops Waltham; R. Pinder, London; *J. R. Pinegar, London; P. E. Ridley, Wandsworth Common; W. F. Robbins, Hastings; W. H. Sanday, Uxbridge; J. C. Scrivener, Caterham Valley; J. H. Shufflebotham, Taunton; W. Sly, Whitehaven; J. A. Smith, Knutsford; P. W. Smith, Finsbury Park, N.; C. H. Southorn, Leamington Spa; E. F. Stimson, Brixton Hill, S.W.; F. W. Terry, York; †C. J. H. Thomas, Hampstead-road, N.W.; A. E. Thurgood, Guildford; W. W. Tremlett, Nuneaton; M. O. Type, Moseley, Birmingham; D. A. Watson, Shirburn, Oxfordshire; F. B. Wells, York; H. J. West, Leytonstone; P. N. Wilkinson, London.

Irish Candidates.

J. C. Goff, Kingstown, co. Dublin; D. R. O'Brien, Limerick; H. R. B. Wood-Martin, Dublin.

The following Candidates have passed the direct Fellowship Examination in Division V.:—

J. G. Kelly, Pontefract; A. S. Marriott, Dewsbury.

Thirty-six Candidates, not included in the above list, who passed the examination in Division II. and III. as a whole, failed in their typical subject and are referred back to their studies in the subject.

Nine Candidates who passed the examination as a whole in Division IV. and V. also failed to pass in their typical subject, and are referred back to their studies.

Eleven out of forty-two Candidates in the various divisions who came up for re-examination in their typical subject have failed again this year.

It is open for all these fifty-six Candidates to offer themselves again for examination in their typical subject in March, 1901.

THE BUILDING TRADES' GIFT.

WE are asked to give the following list of additional subscriptions for the proposed Soldiers' Homes at Bisley:—

	£	s.	d.
The Leicester Master Builders' Association (per Mr. W. E. Starkie, being the proceeds of a patriotic concert)	170	0	7
Mr. W. Hill	52	10	0
Messrs. John Grover & Son	50	0	0
Workmen of Messrs. Colls & Son	37	1	1½
The Old Delabole Slate Company, Limited	20	0	0
Workmen of Mr. George Parker, Peckham	12	2	3
Mr. John Greenwood	10	10	0
Messrs. Wenham & Waters, Limited, Croydon	10	10	0
The Southport and District United Building Trades Association, Southport (per Mr. W. H. Foster)	10	4	6
Workmen of Messrs. Hilton, Anderson, Brooks, & Co., Halling, Kent	10	0	0
Messrs. J. & C. Bowyer, Upper Norwood	10	0	0
Workmen of Messrs. J. & C. Bowyer, Upper Norwood	6	9	7
Workmen of Mr. John Greenwood (per Mr. J. Hayes)	5	16	1
Colonel Hunsiker, Carnegie Steel Company, Limited	5	5	0
Workmen and Staff of the B. & S. Folding Gate and Lift Company	4	7	0
Mr. F. T. Foulger & Employees (per Mr. F. W. Best)	4	1	6
Workmen of Mr. H. L. Holloway (Guinness's Trust, Hammersmith)	2	11	6
Workmen of Messrs. John Weibking & Sons	2	4	1
Mr. George Inglish and Workmen	2	2	4
Messrs. J. Laws & Son	1	16	6
Workmen of Messrs. H. Somerford & Son, Clapham	1	7	6
Workmen of Messrs. Drew-Bear, Perks & Co.	1	6	0
Workmen of Messrs. T. Rider & Sons (per Mr. J. Hibble)	1	1	10
Workmen of Mr. James Stewart, South Tottenham	1	0	6
Workmen of Messrs. John Shelbourne & Co., Ilford	0	16	2
Workmen of Mr. George Parker, Peckham	0	14	6
Mr. J. G. Cooling, Gainsborough	0	10	0
Mr. A. Balfour and Workmen, Kilburn	0	10	0
Workmen of Messrs. John Shelbourne & Co., Barking	0	9	0

The matinée performance at Drury Lane on Tuesday, for the maintenance of the Homes, has resulted in an estimated gain of about 3,000*l.* (the exact amount is not yet ascertained), which will go entirely to create a fund from which the general up-keep and structural and decorative repair of the Homes will be permanently assured.

RESTORATION OF ST. GEORGE'S CHURCH, LEEDS.—The corner stone of the apse which is being constructed at the east end of St. George's Church, Leeds, was laid on the 3rd inst. A new roof is one of the improvements included in the scheme now being carried out. New pews will be provided for the body of the church, the electric light will be installed, and the vestry accommodation will be extended. The architect is Mr. H. Walker.

* Institution Prize, 1900.
† Special Prize, 1900.

* Driver Prize and Penfold Silver Medal, 1900.

* Crawter Prize, 1900. † Penfold Gold Medal, 1900.

Illustrations.

EDGEWORTH MANOR.

WE give two illustrations of the additions to this house, for which Messrs. Ernest George & Yeates are the architects.

The interior view shows part of the oak panelled hall and staircase in the new portion of the house. The oak panelling is here carried up to the parquet ceiling, divided by pilasters. The stairs rise behind an arcaded screen. On the wall, pierced by transomed windows, the panelling is of less height, the stone arches showing above; the lower lights of the windows have oak shutters.

On another page is shown the outside of this new wing, now nearly complete. It is built of a shelly limestone quarried on the estate, and the roofs are of local roofing stones.

The house stands above a wooded ravine and has one of the finest positions in the Cotswold country.

Messrs. Hayward & Wooster, of Bath, are the contractors; Mr. A. Fincham, acting as clerk of works.

The drawings are exhibited at the Royal Academy.

"HOLWELL," HERTS.

THIS is an illustration of a house which is in progress a few miles from Hatfield, from the designs of Messrs. Ernest George & Yeates.

The design has been kept studiedly simple, following the Georgian type, and is of red brick with green outside shutters on its sunny sides. With the porch and wings it is E-shaped on the north or approach side, while a loggia fills the space between the wings to the south.

The building is generally symmetrical but for the necessity of a water tower, which rises from the offices on its east side.

Messrs. Parnell & Sons, of Rugby, are the contractors, and Mr. R. W. Rouse the clerk of the works.

The drawing is exhibited at the Royal Academy.

CHOIR STALLS, SAN PIETRO, PERUGIA.

THE choir stalls of the Benedictine Church of S. Pietro, at Perugia, are executed in walnut wood, richly carved, having intarsia or inlay panels (of boxwood let into the walnut) to the lower stalls, with subjects either arabesques or else taken from scripture.

The whole is the work of Stefano de Bergamo (begun in 1532 and finished in 1535), and is said to be from designs by Raphael, though this statement rests on no good authority, as the latter died in 1520, some years before this work was started. The similarity, however, of the arabesques to those of the Loggia at the Vatican is very marked.

The intarsia is the work of Fra Damiano de Bergamo.

All the arabesque panels and carvings are very vigorous and are varied throughout; the carving stands out very boldly and is tipped throughout with gilding. The effect of the whole choir, so spacious and lofty, with the sweep of its large apsidal end, fitted with these stalls, is one that must cause this church to be ranked as one of the most beautiful in Umbria. The whole church is a "gallery of pictures," and the panorama to be obtained from the balcony (reached through a small door, beautifully inlaid, at the head of the apse) of the Valley of the Tiber and Assisi in the distance, is one not soon to be forgotten.

R. H. WEYMOUTH.

MONUMENT TO NUBAR PASHA.—From a design by Mons. A. Baudry, architect, Paris, there has just been completed by Messrs. A. Macdonald & Co., Limited, in their Abereeen granite works, a monument to be erected in Alexandria, of red Scotch (Peterhead) granite, all polished except where carved, to the memory of the late Nubar Pasha (1825-1899), who died in Paris last year, and whose public services in Egypt are well-known. The memorial is in the form of a small Egyptian temple, the foundation measuring 12 ft. long by 8 ft. deep. There are two front pillars and a back wall, with flanking pilasters supporting an entablature surmounted by an enriched cornice and sloping roof. The total height is over 16 ft. There will be a white marble statue in alto relievo placed on a pedestal close to the back wall once the granite work arrives in the land of the Pharaohs.

ARCHITECTURAL SOCIETIES.

DEVON AND EXETER ARCHITECTURAL SOCIETY: THREE TOWNS BRANCH.—The fourth annual meeting of this Society took place on Wednesday, the 9th inst., at the School of Art, Plymouth. The President of the branch, Mr. Henry Geo. Luff, A.R.I.B.A., occupied the chair, and announced that the annual meeting of the parent society would take place on the 19th inst. at Exeter, and it was hoped that a goodly number would be present from the Three Towns. On the motion of the Chairman, seconded by Mr. Shires, it was resolved to recommend to the Society at Exeter the name of Mr. A. W. Debnam, the Surveyor to the Stonehouse Urban District Authority, as an honorary member of the Society. Mr. Shires, hon. secretary and treasurer of the branch, in presenting his report, stated that three new members had been elected during the past year, and one member had resigned. In September last members of the Society were kindly invited by Mr. James Crocker, ex-President of the parent society at Exeter, to Dunster, where the Castle and the quaint old-time village claimed attention. They were afterwards entertained to luncheon by Mr. Crocker, and subsequently a visit was made to old Cleeve Abbey, a very enjoyable day being spent. In December last a new experiment was tried, and proved every way a decided success. It was well attended and hope was expressed that the dinner should be held annually. The general chairman of the branch (Mr. Henry George Luff) occupied the chair. During the evening Mr. W. H. May proposed the formation of an Architectural Library. The idea was heartily taken up, several subscriptions were promised either in books or cash, and the Library Committee were now considering further developments of the scheme. It was hoped that before the winter session arrived a start would have been made. On December 13 last they were pleased to welcome Mr. Edmund Sedding, who delivered a very able address on "Cornish Granite Work," a very spirited discussion resulting. It was in this department of the Society's work that the committee would like to see a great improvement, and earnestly solicited papers for discussion during the coming session. The committee also desired to draw attention to the Royal Institute of British Architects' prize drawing exhibition held annually in Plymouth in June or July. During the past session registration of architects had continued to be under discussion, a very successful meeting being held at Exeter, in which the principle of the Bill was supported. The report and balance-sheet were adopted. The election of officers to serve on the Council resulted as follows:—Chairman, Mr. Henry Geo. Luff (re-elected); committee, Messrs. Parker, May, Dwelley, Bazeley, and Lethbridge; and hon. secretary and treasurer, Mr. B. Priestley Shires (re-elected).

THE INSTITUTE OF BUILDERS.

ANNUAL DINNER.

THE annual dinner of the Institute of Builders was held on Wednesday evening at the "Albion," Aldersgate-street, City, Mr. J. Greenwood, C.C., in the chair. Among those present were Alderman Sir John Voce Moore, Colonel Stanley G. Bird, V.D., Major Woods, V.D., Messrs. G. H. Fellowes Prynne (President of the Architectural Association), A. Jacobs (Master of the Carpenters' Company), T. Peet (Master of the Masons' Company), J. Randall (Past-President of the Institute of Builders), T. M., Rickman (President of the Surveyors' Institute), J. B. Ward (Master of the Tylers' and Bricklayers' Company), W. F. King and C. Wall (Vice-Presidents of the Institute of Builders), W. E. Riley, A. Murray, H. T. Gordon, T. Blashill, Howell J. Williams, L.C.C., R. Neill, J.P., A. S. Shand, J.P., and T. Costigan. Letters expressing inability to attend were received from Mr. Colls and Mr. W. Sapcote (President of the National Association of Master Builders).

Sir John Voce Moore, proposed "The Army and Navy," and Col. Stanley G. Bird replied.

Mr. T. Blashill proposed "The Institute of Builders." He said that no argument was needed to prove the desirability of such an institution. It existed not merely as to the means to overcome their minor struggles and difficulties in the conducting of building business, but to deal with larger questions involving fair and proper treatment to the builder. He had no doubt that the Institute was carrying out its duties with success, and for the good of everyone connected with the building trade. It also rightly existed for the benefit of the members themselves. It was desired that the men engaged in this important business should have every opportunity of combining and improving their position as much as possible. For many years past—too many years, in fact—the question of builders' contracts had been very much to the fore. His friend, the President of the Institute of Surveyors, knew better than he how long this struggle had been going on. There was nothing so important as a proper arrangement between the contractors and the person with whom they contracted. That was the foundation of everything, and when they could get this question of builders' contracts properly settled they would be in the position of knowing exactly what the rights and duties of the different parties in this important business really were. It was the want of knowledge rather than anything else which got them into the depths of difficulty and brought them before judges and arbitrators who were necessary evils, no doubt. He sincerely hoped that in a measurable distance they would arrive at a conclusion which would be satisfactory to all parties, and which would prevent friction between the owner, architect, and builder for a very long time to come. They all wished the Institute of Builders every success.

The President, in reply, said that he and all the members of the Institute wished that they might soon come to a conclusion with reference to the form of contracts which would be satisfactory to the architects and the public generally. Such a conclusion, he felt sure, would not only help the builders, but it would help the architects and the public. One of the duties which the Institute of Builders undertook was to arrange, when there was any large Government contract, who should be employed as the surveyor or surveyors, and that, in the interest of the builders generally, was a very useful position to take up. They also watched the Bills in Parliament affecting their own interest and probably the interest of the public, and they likewise watched the by-laws made by Local Authorities. There was a by-law talked about which would restrict the trade very much; it forbade any one standing on window sills to clean windows. The Institute also had a fund for the benefit of builders who had not been successful in business, and he regretted to say that there were a great many who had failed through no fault of their own. On behalf of the Institute he had very great pleasure in acknowledging the toast.

Mr. T. F. Rider, in proposing "The Architects and Surveyors," mentioned the story of an American barrister who forgot an eloquent speech he desired to render. After repeating the sentenced "Ladies and gentlemen, twenty years ago this was a howling wilderness" twice, he added, "I wish it was now." He likewise meant to make a powerful speech, but he had forgotten most of it. He remembered, however, that he desired to treat the subject in a philosophic manner—as to whether the architect or the builder came first; whether the builder evolved from the architect, or was the architect the result of the earliest builder? He recollected also that he endeavoured, when thinking of his speech, to sketch an ideal architect from a builder's point of view. He was to be a man not too young to be inexperienced and not too old to suffer from the liver—a man whose detail drawing would be ready when the contract was signed and who would be prepared to issue a certificate before he was asked. He was also to be a man who would settle accounts with lightning-like rapidity. He would believe that there was such a thing as an honest builder; and he would believe that a builder, like a blackbeetle, had feelings. However, they all regarded architects as high-born English gentlemen, whom it was not only their duty but their pleasure to work with, and they hoped that the good feeling which had always existed between them would continue. He remembered likewise having had some idea of what a perfect surveyor should be. He was a man whose courtesy was only equalled by his confidence, who took out all the labour properly instead of lumping it together—a man they could look to for the justice which they never failed to receive.

Mr. F. H. Fellowes Prynne, in reply, said that one would think from the way in which

EDGEWORTH MANOR
GLOUCESTER FOR
ARTHUR J. JAMES ESQ.

ERNEST GEORGE & YEATES, ARCHTS.

SCREEN AT END OF HALL.

EDGEWORTH MANOR
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OF HALL.

INK PHOTO. SPRAGUE & Co. LTD 4 & 5 EAST HARDING STREET FETTER LANE E.C.

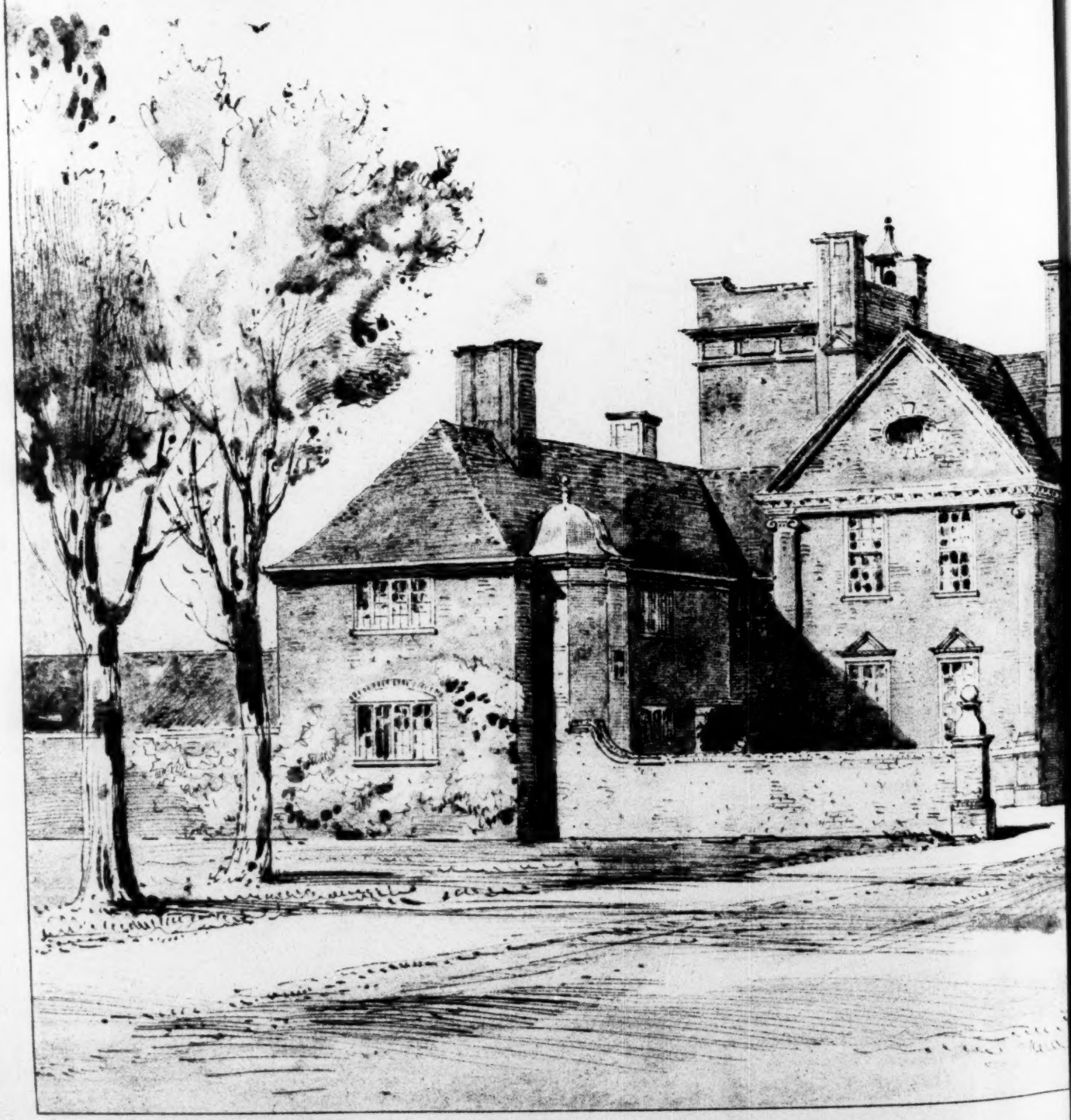
EXISTING
HOUSE

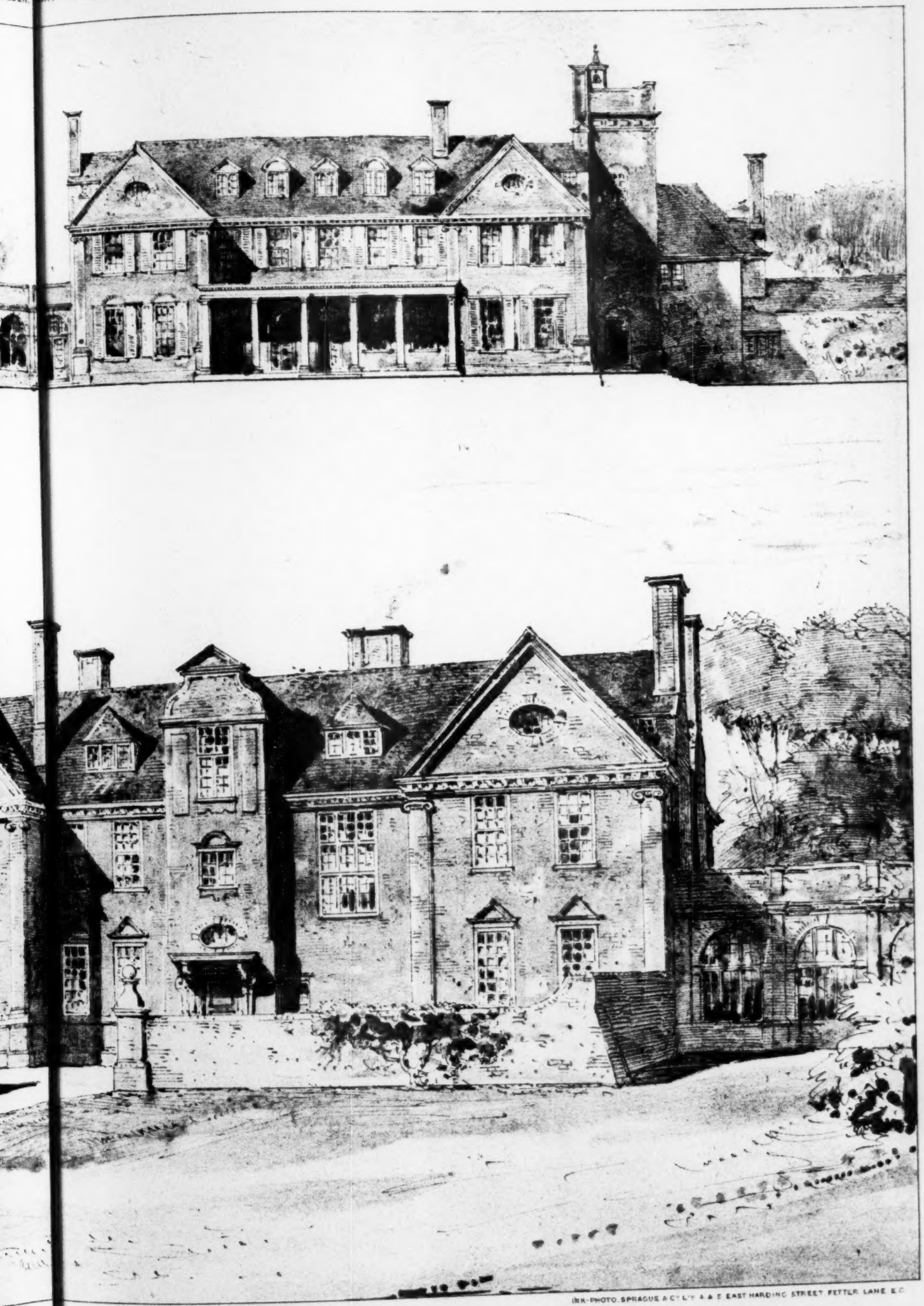
INK-PHOTO SPRAGUE & Co LTD 4 & 5 EAST HARDING STREET FETTER LANE, E.C.

HOLWELL, HERTS

FOR WILFRED E. LAURIE ESQUIRE.

ERNEST GEORGE & YEATES. ARCHITECTS.



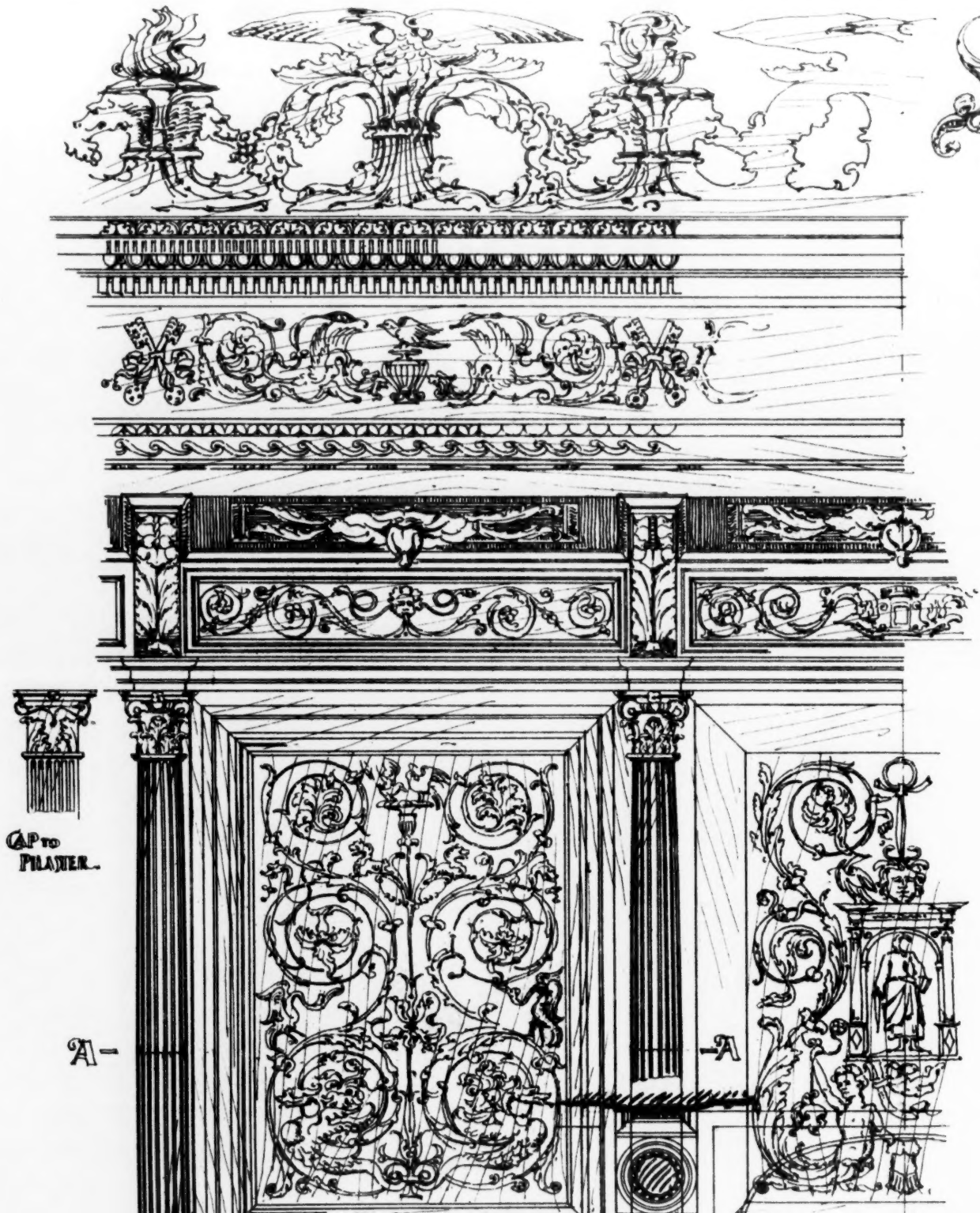


INK-PHOTO. SPRAGUE & Co. LTD. 4 & 5 EAST HARDING STREET, FETTER LANE, E.C.

PERVGIA
ST PETER'S CHVRCH: ONE BAY OF CHOIR STALLS.

DATED 1535.

EXECVTED IN WALNVT WOOD CARVING TIPPED WITH GILDING.



CAP TO PILASTER.

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—A

CENTRE LINE.

PLAN AT LEVEL A A

INTARSIA

INTARSIA PANEL
S. PETER WALKING
ON THE WAVES TO
CHRIST.

OTHER PANELS IN STALL
MOSTLY ARABESQUES.

INTARSIA

INTARSIA

MEASURED
AND DRAWN
ON THE
SPOT
JUNE 2ND & 3RD
1898
TRACED IN INK
NOVEMBER
1899
BY R. H.
WEYMOUTH.

ELEVATION

SECTION

SCALE OF 0 3 6 9 12 1 2 3 4 FEET.

PHOTO LITHO SPRAGUE & Co LTD 445 EAST HARDING STREET FETTER LANE E.C.

the toast was received that architects were popular amongst builders. He hoped this was so; he personally had always met with the kindest of treatment from builders. If there was to be that friendship—that business friendship—between architects and builders which ought to exist, there must be a most thorough business understanding as the basis. Art ought not to interfere with an absolute business undertaking with the builders. No one would welcome more than himself a definite decision as to the conditions of contracts which they hoped would be shortly agreed upon; but there was one thing which architects and builders have wanted to do in the past in their own interest. They must all look at the question from two sides, and it was just as well to refer to this matter. Some seemed to wish that there should be arbitration on the architect's decision as to material. He knew that might be unpopular, but it was as well to know that some builders considered that when an architect felt it necessary to condemn certain material during the progress of work there should be arbitration. Judging by the cries of "No, no!" which had been accorded to these remarks, he judged that he had entirely misunderstood the matter; but he thought it had been spoken of as one of the wishes of the Institute of Builders. If such a thing was adopted it would place the client and architect in a very unfavourable position. There would be absolute chaos, for the architect would not know where his work commenced or the client where his extras began. In the *Builder* and other building papers attention had been called recently to two actions in connexion with architects' fees, in which the point arose as to the surveyor and architect being one person. He most thoroughly advocated and hoped that tenders from architects who tender as their own quantity surveyor would be regarded with suspicion. There was just one other point to which he would refer. The members of this Institute who had the power to raise monuments in this land to mark our history, who had the power of doing thorough good work—surely they also had some power in influencing those who did poor work to do better! In London there was a chaos of bricks and mortar, and in the suburbs houses were run up by speculative builders—he was afraid he must say jerry-builders—purely for money, without any regard for art or anything else. It reminded him of the Frenchman who ridiculed the statement that London was beautiful after he had seen the dull monotony of the streets in some suburb. There was also the story of two friends who each purchased a house side by side. One house fell down during a gale, and the owner could not understand why the other had remained standing. His friend said, "I can explain; I papered my house." Surely this Institute and the Association of Master Builders could influence builders to put an end to this sort of thing.

Mr. T. M. Rickman, who also responded to this toast, remarked that reference had been made to the evolution of architects, but what struck him was the evolution of the surveyor. At one time he occupied the position now held by Mr. Prynne, and Mr. Blashill knew as much about London surveying as any one. He had great pleasure in referring to his connexion with the Architectural Association as the foundation of his professional life. He was trained as an architect and was taught measuring and calculating work. His own inclination was towards the latter, and people did not give him the other work, but they gave him surveying. He had always found that his knowledge of old buildings, which was his special pleasure and the only pleasure he ever had in his professional life, had been of great service to him as a surveyor. He had always been able to take stock of a building, whether it was a small house in the suburbs that had been altered, or a nobleman's house that had gone through generations of alterations, and he had been able to look at the building as a thing which had grown from year to year and from generation to generation, and he had been able to understand its history in a way which he might have missed had he not studied Gothic architecture. With regard to the question of conditions of contracts, the last time he was at the annual dinner of this Institute he was told that the conditions had been settled, but not made public, and he was now told that they were really settled. He trusted that they would be settled, but there was one important matter connected with these conditions which had come before him over and over again, sitting as an arbitrator—that no set of conditions, however well they were drawn, would answer the carrying-out of the contract, unless they were properly fitted to the circumstances of the case. In almost every case there was some local condition, some local material, some local custom—some incident of the contract—which ought to be fairly looked in the face before the contract was signed. The cases which came before him as arbitrator arose because these incidents had not been looked into before the contract was signed. He did not believe that any code or set of rules would apply to all the circumstances of every case, but he trusted they would be able to obtain a set of conditions which would be suitable for general contracts. He had, however, no hope that such a set of conditions could be driven down the throats of all architects, or that they would be found applicable to all the circumstances of every case.

Mr. G. Randall, the ex-President, proposed "The President." He said that during his term of office he hoped that the conditions of contract would be finally settled. The Institute of Architects, however, wanted further amendments, but they all trusted that the matter would be concluded during Mr. Greenwood's term of office. No doubt, also, the new President would do all he possibly could for the homes which were to be the builders' gift to the nation.

The President, in reply, said he would do the best he could in the interests of the Institute.

A toast to "The Visitors," proposed by Mr. W. F. King, and responded to by Mr. E. O. Sachs, concluded the list. During the evening a programme of music was rendered.

APPLICATIONS UNDER THE LONDON BUILDING ACT, 1894.

AT the meeting of the London County Council on Tuesday, the following applications under the London Building Act were considered. Those applications to which consent has been given are granted on certain conditions. Names of applicants are given in brackets. Buildings are new erections unless otherwise stated:—

Line of Frontage.

Fulham.—Three houses on the south-east side of New King's-road, Fulham, at the corner of Bradbourne-street (Mr. R. Groom for Mr. J. Nichols).—Consent.

Projection.

Paddington, South.—A wooden oriel window, at the ground floor level, in front of No. 1, Cambridge-street, Edgware-road, Paddington (Mr P. W. Scott for Mr. L. F. Wyburd).—Consent.

Line of Frontage and Width of Way.

Paddington, South.—An addition to No. 1, Albion-mews North, Hyde Park, Paddington (Mr. A. Rowsell for Mr. C. G. Paterson).—Consent.

Books.

A Treatise on Masonry Construction. By IRA O. BAKER, C.E. Ninth edition, revised and partially rewritten. New York: John Wiley & Sons; London: Chapman & Hall, Limited. 1899.

A PREVIOUS edition of this invaluable work was fully noticed in our columns some years ago, and the favourable opinion we then expressed has since received universal confirmation. We regret to find, however, that the first chapter still contains the suggestion that the primary essential of building material is cheapness, and the doctrine that "next in importance after cheapness is durability." Another expression in the same chapter is to to the effect that "the strength of stone is in some instances a cardinal question." These expressions are so much opposed to the views held by architects and engineers generally, and are so much at variance with the teaching conveyed throughout Professor Baker's book, that we can only assume that the words in question are intended to have some meaning of a more harmless character than that which is apparent on the surface.

Part I., descriptive of materials and their characteristics, has been improved by the re-writing of the chapters on cement, mortar, and concrete, and by the insertion of an entirely new chapter on sand, gravel, and broken stone. So far as the testing of cement is concerned, we observe that the author points out the disadvantages of existing clips for holding briquettes, but he does not describe some of the more recent types which have been examined and favourably reported upon by American experts. In the new matter relative to the preparation and use of mortar, concrete, and artificial stone, the reader will find that due recognition is made of modern theory and practice, with the exception perhaps that very little information is furnished with regard to the transverse strength of concrete. The only data referring to this point are derived from the experiments of Mr. A. F. Bruce, of London, and it may, therefore, be assumed that investigation as to the transverse strength of concrete has been somewhat neglected in the United States. The remaining parts of the volume upon foundations, masonry structures, and masonry arches, although practically unaltered, may once more be mentioned as deserving the most careful attention on the part of all who are interested in such work.

Part III., where foundations are discussed, really constitutes a complete treatise, in which a classification is made of the principles employed in constructing foundations, and sufficient examples are given from actual practice to illustrate the application of these principles to various kinds of soil and to various types of structure. Professor Baker's work is undoubtedly the most masterly exposition of the art of masonry construction which has ever been written in the English or any other language, and its value is considerably enhanced by the additions and emendations forming part of the present issue.

The Construction of Roads and Streets. By WILLIAM H. MAXWELL. London: The St. Bride's Press, Limited. Price 3s. 6d. 1899.

THIS little book covers in the space of about 250 pages the subject indicated by its title. The first portion deals with the history of various methods of road-making. The interest of this section is increased by portraits of Metcalf, Macadam, and Telford. The next section, dealing with the selection of road lines, is too briefly treated, and in the discussion on the influence of geology upon road engineering there are many important omissions. We do not think that the road student would be seriously impressed with the value of geological knowledge by the perusal of this portion of the book. The subjects of embanking and drainage are more satisfactorily treated, and the letterpress is appropriately illustrated by several well-executed diagrams. We must confess to a feeling of some disappointment with the treatment of the all-important subject—road materials. The author appears to have trusted to "Notes on Building Construction" and to Webster's Dictionary for a considerable portion of his information on the nature and composition of rocks. We find in consequence that many old standard errors are repeated here with unblushing insistence. We are told, for example, that potash felspar is more liable to decay than other varieties. No distinction is drawn between the different varieties of mica, some of which rank amongst the most stable of minerals. Elvan is stated to differ from granite in the absence of mica, and greenstone is said to consist of felspar and hornblende. Quenast stone is called a limestone in the text and a granite in the index. In reality it is neither. These are only a few examples, taken at random, of the imperfections in the mineralogical treatment of roadstones. Then, again, we fail to find any allusion to the methods of testing road stones. We are aware that the value of these tests is denied by many engineers; but, on the other hand, so much has been written on this subject in recent years that some information on the point is certain to be looked for by the road student. Almost the only reference to road stone tests is the repetition of Macadam's advice to carry about a pocket set of scales and weights. The technical treatment of modern methods of construction of roads, streets, and footways seems to have been carefully done; and there is here much useful detail. The value, however, of this portion is somewhat spoilt by the very meagre index, a most

important adjunct to any work which claims to be of use for reference.

A feature which strikes the reader of this book throughout is the unusually large portion of the text enclosed between quotation marks. We do not pretend that a carefully-selected collection of excerpts from well-known standard works is without its use, but we think it would have been better if the subject matter had been entirely in the author's own words, and the references confined to the footnotes. The book will, however, be found of considerable use for the purpose for which it professes to have been written, viz., for students preparing for engineering examinations.

Waterworks for Small Cities and Towns. By JOHN GOODELL. New York: *The Engineering Record*, 1899.

THIS work is very largely a compilation, but it is well done, the author having thoroughly assimilated his materials. Scarcely any part of the great subject has been omitted, and considering the size of the book the amount of information contained in it is a matter for wonder. After a few hints on surveying, the yield of catchment areas is discussed, and the four next chapters are devoted to reservoir-dams—earth, timber, and masonry. The chapter on timber weirs and dams is interesting on account of the comparative novelty of such work in this country. The supply of water from rivers and ponds, and from springs and wells of different kinds, is next considered. The chapters on pumps are inadequate, and so is that on the purification of water. The statement that "the details of these American types of filters are so well shown in the publications of the companies making them" that it is unnecessary to describe them, does not help any one to decide which are the best types; and yet this is exactly the kind of information which the student hopes to find in a text-book. The section on water-towers shows that American engineers consider effect much more than their English brethren. Some of the water-towers in Holland are meritorious examples, but they are generally overdone. The three American examples given in Mr. Goodell's book are less fussy and more artistic. One has the iron encased with brickwork and granite; the tower is octagonal, and is faced with granite to about one-fourth its height, and above this with brickwork with granite dressings. A circular stair turret projects from one side of the octagon, and is carried a little above the eaves of the main tower, and finished with a lofty conical roof with spreading eaves. The main roof is of rather lower pitch and octagonal in plan. The two other examples expose the naked riveted plates, but a good effect is gained by the staircases winding helically around them, the projecting balconies at the top, and the conical roofs with spreading eaves.

Here and there we find in the book loose statements which are out of place in a work of this class, as, for example, on page 34, where, speaking of the cross section of dams, the author remarks that, "if the dam is *quite high*, a berm 5 ft. or 6 ft. wide should be made on the inner face a few feet below the low-water level." The two words we have italicised leave much to the student's imagination. But such loose statements are very few. The illustrations, although small, are clear, and the work is well got up and provided with a good index. The book, both in matter and manner, is worthy of the office from which it is issued, and this is saying a great deal.

Hereford: the Cathedral and See. By A. HUGH FISHER. Bell's Cathedral Series. 1899.

HEREFORD CATHEDRAL has suffered so much at the hands of the academic Wyatt that justice is sometimes scarcely done to it. But the rebuilding might have been in the taste of Horace Walpole's Gothic villa at Twickenham, in which case we should have had a still more painful monument of the exotic whims of the eighteenth century. Much to interest us, however, still remains—the grand piers of the nave, the decorated work of aisles and tower, while the Lady Chapel is surely a unique specimen of thirteenth-century architecture.

The general severity and the smallness of scale which the interior presents to some observers call for a greater freedom and relief; and this desire is intensified by Sir Gilbert Scott's iron chancel screen, the design of which is expressive of rigidity in all its details, whereas rigidity is a quality wrought iron does not possess. Scott may have caught an infection from the Early Decorative work in the north transept, which displays in the straight-sided arch such extreme formality as to be barely consistent with grace. The most pleasing feature of the church, as most will probably agree, is the central tower. As to the date of this Mr. Fisher is surely in error. "The central tower," he writes, "that gives example of Decorative work, covered with its profusion of ball-flower ornament, was built by, or at any rate, during the episcopate of, Giles de Braose (1200-1215)." That a fine example of Decorative work should have been conceived at the commencement of the thirteenth century is a statement we should find it difficult to credit, even had not Murray warned us as to its general but erroneous acceptance. We wonder it did not occur to the author to furnish some authority for so unusual a statement.

Like the other volumes of the series, the book has an attractive appearance, and it will no doubt compete for sale with other guide-books, but it will not earn the reputation of a classic. A guide-book, so far at least as its information goes, should be unassailable; and with modern facilities for reference the exercise of a little care should produce a hand-book with a fair claim to permanence.

Home and Garden. By GERTRUDE JEKYLL. Longmans, Green, & Co. 1900.

IN "Home and Garden" Miss Jekyll writes with charm upon many things; upon so many things, indeed, that the reader wonders how it is that he is edified rather than distracted.

In the first place the author builds her own house, not alone, but with all the proprieties conferred by an architect's assistance, of whom—and at the end of it all, too—she has no words but those of praise. She had advantages. The local stone is good; she can put her hand upon home-grown oak that has been twenty years in seasoning. There is a local carpenter of skill and resource who will accept "fair measure and value" for work done. She has her own very definite ideas about the house in which she proposes to live. There must be no passages; anything of that nature must be of such proportions as to entitle it to the name of "gallery." "The sitting-room is low and large, measuring twenty-seven feet by twenty-one feet, and eight feet from floor to ceiling. A long low range of window lights it from the south, and in the afternoon a flood of western light streams in down the stairs from another long window in the middle landing. The stairs come straight into the room, and with the wide-hooded stone-built fireplace, take up the greater part of the western end. The windows are set with their oak mullions flush with the outer face of the wall, so that as the wall is of good thickness every window has a broad oak window-board eighteen inches wide."

"Many of my friends knowing that I dabble in construction and various handicrafts, have asked me whether I did not design the house myself. To which question, though I know it is meant to be kind and flattering, I have to give an emphatically negative answer. An amateur who has some constructive perceptions, may plan and build a house after a fashion; and to him and his, it may be, and quite rightly and honestly, a source of supreme satisfaction. But it will always lack the qualities that belong to the higher knowledge, and to the firm grasp of the wider experience. There will be bungles and awkward places, and above all, a want of reposeful simplicity both in and out."

This is a graceful tribute on the author's part. About a house that is evidently so original in conception we would gladly have learned more than the book tells us. But the author's plan is to leave you interested and pass on to something else. And this something else runs on into chapters upon workshops and tools, the flower garden, wild garden, and kitchen garden, the foliage of surrounding lanes, the planting of common lands—and cats. As the fashion now is, the house stands upon a light sandy soil, and such is, in the gardener's estimation, a poor soil. But if it will not grow lilies or roses to perfection, it will grow lavender and rosemary in profusion, and many things that will compensate for the loss.

The book is illustrated by most excellent, and in some instances very beautiful, photographs of flower, garden, and hedgerow, taken by the author herself. Nor among the illustrations must we omit to mention the portraits of the two house cats as being specimens of brilliant reproduction. We have never seen the camera more sufficiently justify itself as a means of book illustration. The claims of the "formal" garden have been lately so ably advocated by more than one writer that we are the more ready to do justice to the special beauties of the "accidental" garden.

House Drainage and Sanitary Fitments. By GERARD J. G. JENSEN, C.E., Author of "Modern Drainage Inspection and Sanitary Surveys." London: The Sanitary Publishing Company, Limited. 1900. Pp. 257, and 357 illustrations.

THE prominence given by Mr. Jensen to that ugly word "fitments" would have led us—had we not known his previous work—to look forward to the perusal of this book in the fear of finding in it such specimens of Queen's English as would have made the famous Dean turn in his grave. The book, however, is much better than its title, and we can heartily recommend it as a trustworthy guide to the subjects of which it treats. In these days of invention an author cannot reasonably be expected to mention every novelty, at any rate in a small work of this kind; but Mr. Jensen may be congratulated on having crowded so much information into so small a space. Of criticism we have little to offer; but we may point out the inconsistency of objecting to drains of quick gradient on the ground that they would be "exposed to unnecessary wear and tear through the friction of passing sand and similar substances," and of suggesting in their place the use of vertical drops in drains (figs. 146 and 149); the pipe at the foot of each drop would certainly be exposed to "unnecessary wear and tear." Then again, Maguire's "decimal" rule for the gradients of drains may be accurate enough for drains in which there is a regular flow of sufficient depth, but that it is not safe to adopt it for long branch-drains was proved by Mr. Plummer's experiments at Newcastle in 1896. Finally, the statement on page 92 that "the temperature of the air in the drain is always higher than that of the exterior" is quite erroneous, and consequently the theory of drain-ventilation based on it is also erroneous. In these matters, however, Mr. Jensen errs in good company.

The Agricultural Surveyor and Estate Agent's Handbook of Practical Rules, Formulae, Tables, and Data. By TOM BRIGHT. With Illustrations. London: Crosby Lockwood & Son. 1899.

WE can heartily recommend this book. It will prove as useful to estate agents as Molesworth's "Pocket-book" is to engineers, and as Hurst's to architects and surveyors. Besides the usual tables of weights and measures, areas, logarithms, trigonometrical ratios, interest, &c., it contains concise and detailed information about farm-buildings, fences, land drainage, farming operations, fixtures, dilapidations, the measurement of timber, the valuation of property, surveying, and other matters with which the "agricultural surveyor and estate agent" should be conversant. The chapter on "Equipment of Agricultural Properties" occupies nearly one-third of the book, and is of special interest to architects and builders; it is illustrated with plans of farm-buildings, farmhouses, labourers' cottages, &c., and with drawings of roofs, Dutch barns, gates, doors, shelter-sheds, and other details, the scantlings being given in all cases and the approximate cost. Some of the prices, it must be confessed, are too little; for example, slating at 33s. a square of 100 superficial feet. In the section on the strength of beams, a factor of safety of 4 with a constant of 400 for fir is dangerously small. Something ought to have been said, in the section on levelling, about the taking and working out of intermediate sights; back sights and foresights only are mentioned. The allowances made in measuring hay in stacks are stated, but nothing is said about the allowances for hay in permanent barns; in some parts of the country an allowance of 2 in. or 3 in. is made for each wall against which the hay abuts. We have noticed other details in which improvement might be effected, but taking the book as a whole we have found it remarkably accurate and complete. A word of praise is due to the publishers for the admirable manner in which they have performed their part of the work; the type is clear, the paper

thin but good, and the corners rounded to make the book more serviceable for pocket use.

TRADE CATALOGUES.

MESSRS. ASHWELL & NESBIT (London and Leicester) send us a handsomely got-up pamphlet, rather than catalogue, describing their plenum system of ventilation, with illustrations of various buildings in which it has been carried out, accompanied by pretty full descriptions of the manner in which it is constructed and worked in these buildings. A tabular result of tests of their system carried out at Brougham-ter. School, West Hartlepool, is also given, which shows the size of inlet in each room, the velocity of the air on entering, the cubic contents and the number of times the air was changed per hour. With the article on the plenum system as a principle of ventilation we are generally in agreement, though we decline to accept as a fixed principle that the air should be admitted at the top of the apartment and withdrawn at the bottom. The firm state that they have given great attention to the question of the size of steam mains, and their alignment and fixing, and that "there are more inaccuracies in this class of work than in any other we know of. It has often been found that the bad arrangement of steam piping has been the principal reason for an apparatus not working satisfactorily"; which we can readily believe. We are glad to see the remark, "We have rather discarded ornament on our radiators, because we believe English architects do not care for this"; we hope other firms will follow this example.

Messrs. G. A. Harvey & Co., metal trade manufacturers, send us the discount list for use in connexion with their trade catalogue, showing in table of columns the name of each article, the number of the page in their catalogue, and the trade discount on it.

We do not generally notice trade almanacks, which come in shoals in the early part of the year, but that issued by the "B. and S. Folding Gate Company" is so artistic in form, with its picture in the centre, and the decorative wreaths enclosing some gilt symbols of the trade, that we must make an exception in its favour. We do not know what the picture of the two lovers (by Mr. Alfred Fredericks) has to do with the folding gates, but it is at all events a very pretty one.

Correspondence.

To the Editor of THE BUILDER.

FOUNTAINS ABBEY.

SIR,—In your review (p. 472) of Mr. Hope's excellent work on Fountains Abbey a doubt is expressed as to the correctness of his statement that the method of vaulting the nave aisles is an importation from Burgundy. As I am responsible for having made a similar statement elsewhere (*Royal Institute of British Architects Journal*, 3rd s., vi., 310), I think it would be interesting if your reviewer would give his reasons for thinking that the method is of English origin. The system of covering aisles with barrel vaults set transversely is associated with barrel vaulting over the nave itself, for which the aisle vaults provided abutment. An example is illustrated by Viollet-le-Duc, *Dict.* i., 179, fig. 14, and four others are shown on plate 99 of Dehio and von Bezold's *Die Kirchliche Baukunst des Abendlandes*. At Fountains the Cistercian builders only borrowed the system, working it out in the national manner of the time, and the nave itself was never intended to be vaulted. But, so far as my observation goes, this system was quite foreign to the Norman and English methods of the middle of the twelfth century.

It may be useful for your readers to know that, although Mr. Hope's monograph is published in the *Journal* of the Yorkshire Archæological Society, separate copies of it can be purchased from the secretary, 10, Park-street, Leeds.

JOHN BILSON.

*** Mr. Hope says that the method of vaulting the aisles and chapels east of the transepts "is a Cistercian importation from Burgundy," and gives Mr. Bilson as his authority. We had the advantage of reading with care Mr. Bilson's admirable paper on Norman Vaulting, read before the Royal Institute of British Architects on March 20, 1899, directly it was issued, and at a much more recent date we have noted Mr. Prior's arguments ("History of English Gothic") against the too common assertions as to foreign origin of purely English work, particularly with regard to the Cistercian architecture of the seventeenth century, and the notion that England borrowed the square east end from Citeaux. Mr. Bilson refers to Viollet-le-Duc in support of the vaulting idea of Fountains being borrowed from Burgundy; but Viollet-le-Duc's illustration ("Dict.," i., 179) is an example of methods adopted at Limoges, Chatillon-sur-Seine, and Fontenay, and certainly these are not Burgundian towns. Moreover, the cross-arches, still standing, of the nave aisles of Fountains are semi-circular, as shown in fig. 4 of Mr. Hope's treatise, whilst the specimen example of Viollet-le-Duc (fig. 14) shows pointed cross-arches. The pointed cross-arch is also given in a text illustration of Fonteney in Dehio's *Die Kirchen des Cistercienscrordens*, page 529. Plate 99 of Dehio and von Bezold's great work seems to us to have only two examples in any way resembling Fountains, namely Hauterive and Bonmont, and in each of these cases the cross-arches of the aisles are pointed and not rounded. When we think, too, of the transverse arches used in the vaults of the crypts and chapter-houses and small buildings by early Norman architects, as at Durham, Lastingham, Worcester, Winchester, Canterbury, St. Peter's, Oxford, and Norwich, there seems to be no necessity for assigning the aisle vaulting of Fountains to foreign and certainly not to Burgundian influence.—ED.

THE NAMING OF THE NEW STREET.

SIR,—In your "Note" in the *Builder* of the 5th inst., referring to my letter in the same issue, you suggest that I wish "to abide by" a principle of street-naming which I admire "for the sake of future students of London topography." I assure you that I had no such intention. I wished merely to suggest that a name conformable with the surroundings and purpose of the new street would be more appropriate than one in no wise related to the surroundings or the purpose.

Mr. Henry B. Wheatley—in his letter in your issue of the 12th inst.—objects to the names I proposed because they are archaic in form and "mimic our forefathers." He regards "Shaftesbury-avenue" and "Rosebery-avenue" as "singularly appropriate names," and states that "new streets should be named according to the spirit of the nineteenth century." But Mr. Wheatley also states that we are now "eclectic and unreal in our tastes." Would he not be more consistent if he were to condemn—instead of approving—our recent street nomenclature, which is the outgrowth of that "eclectic and unreal" nineteenth century taste which he deplores? But Mr. Wheatley wishes to continue naming our new streets "according to the spirit of the nineteenth century" and its "eclectic and unreal tastes."

And is Mr. Wheatley accurate in stating that the names I proposed are archaic in form? *Strand* and *bourne* are common dictionary words; *link* (in the sense of a connecting road) being a railway term, cannot be regarded as archaic (though unfamiliar in street nomenclature) and the term *high* is certainly not an obsolete word. I gave several illustrations of the present use of the word with the signification of "chief."

When building a new cathedral in the Early English or Decorated style, we do not "mimic our forefathers," * and in naming a new street on the principle of our predecessors by calling it that which it is, rather than that which it is not, we should be equally innocent of mimicry.

FREDERICK DAVIS.

SIR,—There is a principle in the naming of new streets that I think ought not to be lost sight of, namely, that they should derive their names from some important building or locality to which they lead, or from some public building in the street itself. Horse Guards-avenue and Charing Cross-road are examples of the former; Imperial Institute-road of the latter. By this means finding one's way about is simplified, which, in a large place like London, is a great consideration.

I would suggest either St. Mary's-avenue or Somerset House-avenue as appropriate names in the present instance.

C. F. M.

THE PAVIORS' COMPANY.—The Court of Aldermen of the City of London have agreed to a report presented by the General Purposes Committee on the petition by the Master, Wardens, and Assistants of the Company of Paviors. The Company prayed that the Court of Aldermen would grant them a livery. The report sets forth that several members of the Paviors' Company were connected directly or indirectly with the paviors' craft, that the industry had greatly developed during recent years, and that the Company are actively prosecuting their work and interests among those engaged in that trade. Having regard to the fact that, despite the absence of a previous charter of incorporation, a livery had been granted in a few cases where the especial circumstances warranted such a course, the Committee recommended, and the Court of Aldermen assented, that the Paviors' Company should be created and reconstituted as a livery company of the City, the number upon the livery to be not more than sixty at any time.

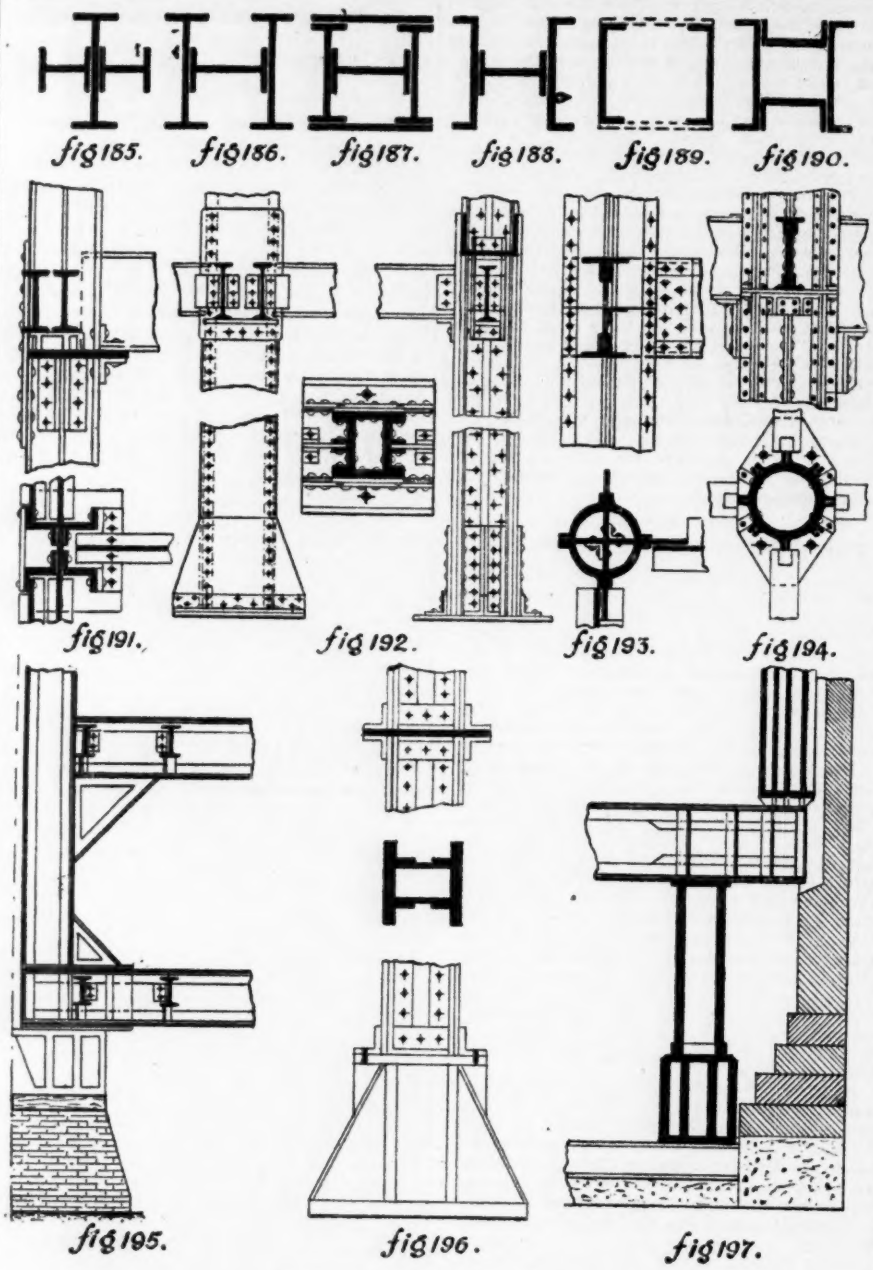
* On the contrary, that is exactly what we do; and it is a mistake.—ED.

The Student's Column.

DETAILS OF STRUCTURAL IRON AND STEEL.

19.—WROUGHT-IRON AND STEEL COLUMNS AND CONNEXIONS.

IN the present chapter no distinction will be drawn between wrought-iron and steel columns, because construction in either material is precisely the same. As a matter of fact, the employment of mild steel is now practically universal, and wrought-iron columns are out of date so far as new work is concerned. The simplest possible form of steel column can be made by using a weldless tube, to which an angle ring is riveted at the bottom to serve as a connexion to the base, and another ring at the top for connecting the shaft with the cap. Tubes of this kind are readily obtainable up to 20 in. in diameter by ¾ in. thick, and they are made of round, square, octagonal, hexagonal, and other sections. Stanchions may consist of a single I-joist or channel, providing the load is not too heavy. Columns are generally built up of various commercial sections of steel, and a great variety of shapes can thus be produced. Two conditions which should always govern the form given to the completed column are strength, and suitability for the attachment of other members of a structure. Further, it is policy to select sections which can be rivetted together with a minimum expenditure of time and material. Strength can easily be calculated by the rules given in previous chapters; suitability for the connexion of other members depends entirely upon the arrangement adopted, which should always permit the load to fall as equally as possible on all parts of the column. Economy of manufacture is ensured by using sections providing the necessary strength but requiring a small number of rivet lines. A cruciform column may be made, as shown in fig. 185, by the use of three I-joists; the two smaller members are rivetted through their flanges to the web of the larger one, and only two lines of rivets are required. Although the cruciform shape is not in itself economical because of its relative weakness, this drawback is considerably neutralised by savings in manufacture. The same kind of section can be obtained by building up the column of angles and plates, but eight lines of rivets are then necessary. The H-section, fig. 186, is formed of three I-joists, joined by four lines of rivets. If cover-plates are added, as in fig. 187, twelve rows of rivets are necessitated, and the metal inside the square is of small theoretical value, for it is always the fact that metal near the neutral axis of a column contributes very little strength. Another type of H-section is shown in fig. 188, the only difference between this and the column illustrated in fig. 186 is that the outer members are of channel instead of I-section; by turning the channel so that the flanges face inwards, a more pleasing appearance is secured. In either case four lines of rivets are required. Square columns may be constructed in several ways, one of the simplest of which is seen in fig. 189. The channels may be rivetted to solid side plates, or, if preferred, the sides can be latticed. Angles are frequently employed in making square columns, the sides plates being fixed on the inside or outside of the angles according to fancy. The former arrangement is certainly more sightly than the other, though not quite so convenient for rivetting. Examples of columns so made can be seen on some stations on the Metropolitan Railway and elsewhere. Square columns formed with channels only need four lines of rivets, whilst those with angles take eight lines. A good rectangular section is seen in fig. 190, made entirely of channels, and only necessitating four lines of rivets. Several modifications of this shape are obvious. For instance, the upper and lower channels might be displaced by two flat plates, or channels could be discarded altogether in favour of plates and angles, and sections like those given in figs. 192 and 196 would then be produced. Sometimes a built-up I-beam, as fig. 163 (Chapter 16) is used for a column, and when the lines of rivets are not more than six in number this form is in every way satisfactory. A column made up of Z-bars is considered by some engineers to be superior to all other types. It certainly requires a comparatively small expenditure of labour, and provides facilities for the

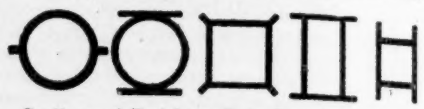


Illustrations to Student's Column.

suitable attachment of girders. As will be seen in fig. 191, only two lines of rivets are used, and all the surfaces of the column are readily accessible. Columns are also made up of rolled segments, as shown in figs. 193 and 194. Most of the large rolling mills in England manufacture this kind of section, which is well know in the United States as the "Phœnix" segment, and, being patented, can only be obtained from one firm in that country. Any desired sectional area within reasonable limits can be secured by placing plates between the segments. In practice it is always desirable to use such plates if the column is formed of two or more lengths, as connexions cannot satisfactorily be made by any other means.

One of the influences which tend to produce weakness by reason of internal stresses, is the effect of machine rivetting. We do not mean to imply, of course, that the individual rivet joints are weak as compared with hand-rivetted joints, but to direct attention to the undoubted fact that when a compound member is being rivetted up, the different parts tend to stretch and creep past each other, sometimes in varying degrees. Consequently the member may exhibit curvature on completion, or it may be apparently straight though subject to considerable internal stress. An instance of this effect is cited by Mr. Moncrieff, in connexion with a bridge over the River Tyne. In order to guard against the creeping tendency, the engineer's specification demanded that the large columns of the river piers should have their butt-joint ends machined over the full section, after having been rivetted up in lengths at the contractor's works, the object being that the butts should have full bearing over the entire sectional area. The columns were of cruciform section, built of plates and angles, and the total length of each was about 81 ft., consisting of three separate lengths. Owing to some oversight in the case of some of the columns, the terms of the specification were not complied with, and instead, the ends of each bar and plate were machined to a good fit before rivetting was commenced. Tacking rivets were put in for the purpose of keeping the different parts in their correct relative positions, and rivetting was then proceeded with throughout the length of 27 ft. On completion it was discovered that the angle-bars and plates had crept past each other to such an extent that the previous fitting was entirely nullified, and the joint had to be redressed by hand. The web-plate ends were also found to be hollow to the extent of $\frac{1}{16}$ in. in the half-width of column between the angle bars, thus evidencing internal stresses in the column as made. The columns appeared to be quite straight and true as a whole, and the material was all made and tested under the same specified requirements of tensile strength, viz., twenty-eight to thirty-two tons per square inch, with ultimate elongation of at least 20 per cent.

This creeping tendency is one which cannot be avoided in rivetted members, though it can be allowed for when estimates of strength are being made. If tubular columns of the kind previously mentioned can be employed there is very little reason for anticipating internal stresses, but in many cases a simple tube will not possess sufficient strength for carrying the given load. In this connexion it may therefore be useful to make mention of some new sections of seamless tubes, which are manufactured at the Duisberg Iron and Steel Works, in Germany. Some of the sections most suitable for structural work are illustrated in the accompanying diagram, and it will be observed



Sections of Duisberg Co.'s Seamless Tubes.

that they comply with the conditions necessary for strength and economy, although the second example does not appear to be of particularly desirable shape. These sections are rolled as above, in lengths up to 33 ft., and up to 20 in. diameter, so there are no longitudinal joints to favour corrosion and to cause weakness and expense. It is said that columns formed of these sections have already been somewhat extensively used on the Continent, and the attention of our own manufacturers might advantageously be turned in a similar direction.

Columns of wrought-iron and steel may be joined together in various ways, the simplest of which is shown in the upper part of fig. 196, where the top of one length and the bottom of another are fitted with angle-bar flanges which can be joined by bolts passing through the separating plate indicated in the figure. In fig. 191, a somewhat similar mode of connexion is illustrated, and the figure also shows how girders may suitably be supported. The two portions of the column are separated by a plate, the thickness of which must depend upon the weight transmitted by the girders. The two small joists are intended to carry a curtain wall, and they stand upon castings secured to the separating plate by bolts which pass through the flanges of the joists, as well as through the castings and the plate. The large girder rests directly upon the separating plate, and the bolts which hold it in position pass through two angle bracket serving to stiffen the plate and to connect the two portions of the column. The plate is also strengthened by brackets at each side, and a cover-plate is provided at the back of the column, where in this case there would be no room for an angle bracket, because the column is intended to be situated in one of the outer walls of a building. The column, of which front and side elevations and sectional plan are shown in fig. 192, is of a type used in the New Netherland, New York. This building stands close to the entrance of Central Park, and has seventeen stories above the street level. It will be noticed that the girders composed of two I-joists are supported on angle brackets rivetted to the column, and that they are also rivetted to angle knees placed at each side of the webs of the joists. The inside knees were fixed to the column at the contractor's shop, and the outer knees were left loose so that they could be rivetted on when the girder had been fixed in position. A similar arrangement was made for the other girders shown. In connecting one portion of the column to another, a separating plate was employed as before described, only in this case it is above instead of below the girders, and it does not extend so far beyond the sides of the column. Two sides of the joint are made by the aid of angle brackets, and at the other sides cover-plates are provided extending about 2 ft. above and below the joint. As the upper length of column is of smaller area than that to which it is connected, filling plates are necessary between the cover-plates and the sides of the upper column. One method of attaching girders to a column made of segmental section is shown by fig. 193. Here bars are placed between the flanges throughout the entire length of the column, but at the part where the girders are attached, and the different lengths of the column are connected one to another, the bars are displaced by plates, one extending through the column, and two others reaching to the centre where they are attached to the first plate by angle brackets. The segments are rivetted to these plates, and the girders are rivetted to their projecting ends as indicated. In this manner it is possible to form a column continuous from the bottom to the top of a building, so that the joints are quite as strong as, if not stronger than, the remainder of the shaft. The angle bar drawn at the side of one girder is for supporting the floor arch, the other end of which would be carried by a joist rivetted to the other girder. In fig. 194 a column of eight segments is represented. The girders

are supported on knees, and the upper flange of each girder is not connected by the usual angle bracket, but a wedge is driven between the end of the girder and the column, so that the space shall be entirely closed. A cap plate is fitted to each length of column and connexion is made by rivets passing through the plate and angle plates rivetted to the upper length. When a very heavy load has to be carried by a girder, the latter member may advantageously be supported by a triangular bracket rivetted to the column, as illustrated in fig. 195. This bracket can generally be situated in a partition wall, and thus any disfigurement of the interior apartments may be avoided. The column in this figure rests upon the girder below, which transmits the weight to the cast-iron base. By this arrangement the centre line of pressure is removed further away from the outer wall than it would be if the column were supported in the usual manner. A cast-iron base plate suitable for a heavy steel column is shown in fig. 196; and fig. 197 illustrates an interesting example of cantilever construction, occurring in the Old Colony Building, Chicago. This mode of support became necessary for some of the columns because of a difficulty with the owner of the adjoining property. The lower column is 3 ft. 6¾ in. from the party line, and rests on a triple-web box girder, 2 ft. 6 in. by 2 ft. 6 in., which is placed on a series of 15-in. I-beams bedded in concrete. The end of the box-girder cantilever supporting the segmental upper column is also shown in the figure.

GENERAL BUILDING NEWS.

CATHOLIC CHURCH, SKERTON, LANCASHIRE.—The foundation-stone of the new church of St. Joseph, Skerton, was laid on the 6th inst. The building will consist of a nave and two aisles, one aisle terminating in a square tower, which will be 65 ft. high, and the other in an octagonal baptistry. The façade will consist of the tower at the north-west corner, front door and west window in a recess, and the octagonal baptistry covering the lean-to roof of the aisle at the south-west corner. The church will be 112 ft. long and 54 ft. wide. There will be two side chapels, also sanctuary, sacristies, and confessionals. There will be five tracery windows on the north side and four on the south, five clearstory windows on each side, and a large tracery window at the west end. The structure will be of Yorkshire stone. Messrs. Pugin & Pugin, London, are the architects, and Mr. Chas. Walker, of Preston, is the sole contractor.

WESLEYAN CHURCH, HAYWARD'S HEATH, SUSSEX.—Memorial stones were laid on the 2nd inst. of a Wesleyan church which is being erected at Hayward's Heath. The church is being built of red brick, with Bath stone dressings, and will seat 352 persons. Mr. James Weir, of Westminster, is the architect; Messrs. W. Johnson & Co., of Wandsworth, being the builders.

WESLEYAN CHAPEL, ARNOLD, NOTTINGHAMSHIRE.—Memorial stones were laid on the 3rd inst. of a Wesleyan chapel in Church-drive, Arnold. The building will be 52 ft. long by 35 ft. wide, and will seat 300 persons. A block of schools will adjoin the chapel, and the principal schoolroom will be 36 ft. by 25 ft. divided from two classrooms by a movable partition. Externally the buildings will be of red bricks, with stone dressings. Mr. W. H. Higginbottom, of Nottingham, is the architect, and Mr. A. Wayte, of Arnold, is the contractor.

PRESBYTERIAN CHURCH, WHITEABBEY, CO. ANTRIM.—Whiteabbey Presbyterian Church was re-opened, after undergoing repairs, on the 6th inst. The church has been practically rebuilt, with the exception of portions of the two side walls; and an alcove, intended for an organ, has been added over the pulpit. The ceiling, flooring, and furniture are all new. The building contract was carried out by Messrs. J. & W. Stewart, and the architect was Mr. Nicholas Fitzsimmons. The cost was about 3,500*l.*

FREE CHURCH, MACDUFF, BANFF.—The new church which has been erected for the Free Church congregation of Macduff was opened on the 10th inst. Mr. A. Marshall Mackenzie, Aberdeen, was the architect. The building contains 550 sittings.

NEW CHANCEL, &C., CHRIST CHURCH, CHELSEA.—A new chancel, organ chamber, and a choir vestry are to be built at Christ Church, Chelsea. The foundation-stone of the new chancel was laid on the 8th inst. Mr. A. Reeve is the architect.

SCHOOLS, CHURCH EATON, STAFFORDSHIRE.—New schools at Church Eaton were opened on the 2nd inst. The buildings are of brick, and were designed by Mr. G. Wormal, of Stafford. The builder was Mr. T. Herbert. Mr. Wm. Chatfield executed the woodwork, and Mr. W. Packman the plumbing and painting.

CHURCH SCHOOLS, BEESTON, NOTTINGHAMSHIRE.—The foundation stone of new church schools, which are being erected upon a site having frontages to Humber-road and Hassock's-lane, Beeston, was laid on the 3rd inst. The building is to be of pressed bricks, with Bath stone dressing, and a roof of green slate. Mr. Robert C. Clarke, of Nottingham, is the architect, and the contractor is Mr. Wm. Fletcher, of Beeston. It is proposed at some future time to erect a church adjoining the schools.

BOARD SCHOOL, LEYTON.—The foundation-stone was laid recently of the new school which the Leyton School Board are building in Davies-lane. There will be accommodation for 1,502 children. The infants' department will have ten class rooms, and the boys' and girls' departments eight each. A hall, 73 ft. by 30 ft., will be attached to every department. The caretaker's house will be apart from the school building. The amount of the contract is 25,638*l.*, and it is being carried out by Mr. F. J. Coxhead, under the supervision of Mr. W. B. Jacques, Architect to the Board.

NURSING INSTITUTION, NORTHAMPTON.—The memorial stone of the new Nursing Institution, which is in course of erection in Leicester-place, and is to form Northampton's Memorial of the Diamond Jubilee, was laid on the 3rd inst. The building stands back about 40 ft. from the street and has a frontage of 42 ft. In the basement are a dining-room for the nurses, kitchen, scullery, pantry, box-room, lavatory, and coal cellar. On the ground floor are the secretary's office, with a store-room adjoining, a matron's private room, a nurses' sitting-room, and a lavatory. On the first floor are three bedrooms for private patients, a bath-room, a matron's bedroom, &c. On the second floor are seven bedrooms and bath-room and lavatory accommodation for the nurses. The building is to be faced with Bath stone and the roof to be covered with red tiles. The cost will be about 2,400*l.*—exclusive of furniture. Messrs. C. Dorman & Son, of Northampton, are the architects, Messrs. E. D. Sharman & Sons, of the same town, being the builders.

PROPOSED EXTENSION OF THE LEEDS UNION INFIRMARY.—At the fortnightly meeting of the Leeds Board of Guardians on the 9th inst. the chairman of the Infirmary Extension Committee (Dr. J. G. McCandlish) submitted the plans and details prepared by the architect, Mr. Saxon Snell, in connexion with the alterations which have for some time been under the consideration of the Board. The committee reported that the most desirable manner of providing additional accommodation was by utilising the present Section six and the main schools' building, and erecting additional blocks in place of the old building behind the schools. They recommended the Board to provide infirmary accommodation for 770 cases. The main building of the schools should form the administrative block, containing entrance-hall, committee-rooms, medical staff and matron's offices, library, visitors' rooms, matron's quarters, and quarters for the assistant medical officer, steward, &c., with servants' bedrooms on upper floors. The upper floors and wings to be utilised as wards, and proper sanitary blocks erected. The new Infirmary blocks should be erected on the site of the old buildings behind the schools, proposed to be removed. Other blocks would comprise kitchen and stores (one-story building), and double wards (three stories in height), and a one-story building for lying-in cases. The committee recommended that the existing medical officer's house be not interfered with. A block for male and noisy cases should be erected behind it, and no alteration made in the front elevation of the schools building, the committee believing that the officers' quarters could be effectually cut off from the wards without any alteration to the front of the building. Separate receiving wards for male and female cases to be provided on the ground floor of the schools' building. The committee advised the board not to consider the suggestion to reduce the number to be accommodated to 650 by omitting the top floors in two of the new blocks. A new mortuary would also be erected. The total accommodation would be for 358 males and 412 females. With regard to the extension of the nurses' home, the committee believed that the most feasible plan would be by adding another story throughout. The present dining-room and kitchen could then be thrown into one large room, and a new kitchen provided on the floor above. Dr. McCandlish moved the adoption of the committee's report, and Mr. Eddison seconded, and the proposition was carried, with the one alteration that the words in the report binding the Board to an accommodation of 770 should be eliminated.

Y.M.C.A. PREMISES, NEWCASTLE-ON-TYNE.—The new premises for the Young Men's Christian Association at the junction of Grey-street, Grainger-street, and Blackett-street were opened on the 9th inst. The building contains reception-room, a reading-room, fourteen smaller rooms, a hall capable of seating 700, a second hall capable of seating 300, a gymnasium and baths, while other portions of the property consist of shops and offices. The principal entrance to the Y.M.C.A. is in the centre of the façade in Blackett-street. The main staircase is lighted by a window in High Friar-street, where Dr. Bruce's memorial window has been replaced. A lift has been provided up to the uppermost floor. The large hall has an entrance from Blackett-street, and a back entrance from High Friar-street. At the back of the shops that occupy the intervening space between the entrance and the Academy of Arts is a meeting-room, 37 ft. long by 25 ft., with entrance from the vestibule of the Y.M.C.A. On the other side of the vestibule there is a bicycle stable. Above this, on a mezzanine floor, a dressing-room is provided with lockers, lavatory, and bathroom. On the first floor is the general office of the Association. On the left is a large hall, and on the right a reception-room, 34ft. by 20 ft., with a buffet, cloak-room, and lavatories. Leading out of the reception-room is the games-room, 24 ft. by 18 ft., and beyond this is the reading-room. The large hall, with an ante-room, is on this floor. It will be known as the "Connaught" Hall. On the second floor is the committee-room, adjoining which is the young men's parlour. A 6-ft. corridor runs down the centre of this floor to the small hall. The third floor contains the gymnasium, with lavatories, baths, dressing-rooms, &c. The fourth floor has been let as a photographic studio The premises are heated by steam and lighted by electricity. The contract has been carried out by Mr. A. Pringle, of Gateshead, the sub-contractors being as follows:—plastering, Mr. W. R. Dodds, Jarrow; slating, Messrs. Beck & Son, Newcastle; plumbing, Mr. R. Herron, Newcastle; and painting and glazing, Messrs. Adam Robertson & Son, Newcastle; Messrs. Vaughan & Dymond, of Newcastle, supplied the ironwork, and Messrs. W. B. Wilkinson, of Newcastle, did the concreting. The heating engineers were Messrs. H. Walker & Son, of Newcastle. The electric light was installed by Messrs. Bland Bros. The brass shop fronts were supplied by Messrs. Griffiths & Co., the glazing being by Mr. G. J. Baguley. Messrs. Diespeker executed the mosaic work; Mr. G. Wragge, the wrought-iron work, and Mr. J. Angove, the marble work. The clerk of works was Mr. F. W. Bulmer. Mr. J. W. Taylor, of Newcastle, was the architect. The total cost has been about 43,000*l.*

PUBLIC BATHS, CHESTERFIELD.—The new baths erected in South-place, Chesterfield, by the Corporation, were opened on the 5th inst. The building has been erected from designs by Mr. Featherstone, a former Borough Surveyor, and under the supervision of the present Surveyor, Mr. Nicholas. There are ten porcelain slipper baths, two of them to be first-class baths. The builder was Mr. R. Peck, of Chesterfield. Mr. Haslam, of Hardstoft, carried out the heating arrangements.

HALL, DUNDEE.—The local members of the Ancient Order of Foresters are about to erect a hall on the north side of Ward-road, Dundee. The site is at present occupied by a block of houses and offices. The plans for the new building have been prepared by Messrs. Johnston & Baxter, Dundee.

BAPTIST CHAPEL, GROES, DENBIGH.—An English Baptist chapel has been built at Groes, near Ruabon; it will seat 250 persons. Mr. J. W. Jones, of Ruabon, was the architect.

NEW CONVENT CHURCH OF ST. LOUIS, KILTIMAGH, CO. MAYO.—The foundation-stone of a new church for the Convent of the Sisters of St. Louis was laid on the 6th inst. at Kiltimagh. Mr. William Byrne, of Dublin, is the architect.

TOWN HALL, BALBRIGGAN, COUNTY DUBLIN.—The new Town Hall, Balbriggan, was opened on the 3rd inst. The building is situated in the main street, and has cost about 1,100*l.* The hall will seat about 500 persons, and is 85 ft. by 30 ft. The architect is Mr. Shaw, C.E., of Drogheda, and Mr. Henley, of Drogheda, is the builder.

EXTENSIONS TO THE CLOTHWORKERS' DEPARTMENTS OF THE YORKSHIRE COLLEGE, LEEDS.—Additions have been made to the clothworkers' departments of this building. The new buildings were opened on the 11th inst. and have been designed by Mr. Alfred Waterhouse, R.A., in harmony, architecturally, with the other parts of the college. They adjoin the main wing of the textile department. By means of a corridor over the front of one of the weaving sheds—an extension of the textile museum—the spinning building is reached. On the ground floor there are rooms in which the preparatory processes of yarn manufacture will be carried out, including a stock-room, scouring, blending, and preparing rooms. A large apartment, also on this floor, is to be equipped with two sets of carding machines, spinning and twisting frames, the machinery having been designed with the specific object of affording scope for variety of experiment in making all kinds of woollen yarns. The second floor will hold the worsted machinery, cap, flyer, and ring spinning frames, as well as preliminary machinery for back-washing, combing, and gilling. There is also a small conditioning research laboratory, where investigations may be carried out and tests made as to the nature and effect of different processes in yarn construction. The extension of the dyeing department consists of a three-storied building containing two additional dye-houses for practical dyeing, and a research laboratory for the prosecution of scientific investigations into colouring matters and their application to the dyeing of textile and other fabrics. The two buildings, with their fittings, will cost upwards of 26,000*l.*

FIRE BRIGADE STATION, GLASGOW.—The new Central Fire Station of the Glasgow Fire Brigade was opened on the 1st inst. The new station covers an area of 3,300 yds., and has involved a total expenditure of over 60,000*l.*, the site costing 22,750*l.*, and the buildings about 40,000*l.* The station has two frontages—one in Ingram-street, and the other in High-street, that in Ingram-street, four stories in height, being the principal. On the ground floor to

the right of the entrance are the watch-room and the engine-house, with accommodation for four machines. The offices are to the left, and comprise the chief officer's room, officers' and clerks' rooms, &c. Immediately to the rear of the engine-house, and opening into it, are stalls for eight horses; and behind this is the fodder-house, spare stables, machine and harness rooms. On the first floor, over the engine-house, are two duty rooms, provided with sliding poles. A passage across the roof of the stable communicates with the recreation rooms. The remainder of this floor and the floors above are occupied by the officers' houses. The engine-house walls are lined inside with marble and polished granite, and the floor is laid with oak blocks. The High-street building is five stories in height. The four upper floors are occupied by the firemen and their families, the ground floor being occupied as shops. At the south side of the courtyard is a block of buildings containing on the ground floor rooms for spare machines, workshops, for boot-making, hose-repairing, engineering work, joinering, coach-painting, and plumbing; and on the three floors above are the houses for the firemen and their families. Behind this building is situated the children's playground. Facing this block on the other side of the courtyard a range of one-story offices is built, comprising wash-houses, laundry, drying-room, smithy, oil store, electric shop, &c.; in the south-west corner of the courtyard is the hose-drying tower, rising to a height of 90 ft., having on the top a test-room for all fire alarm, telegraph, and telephone lines; adjoining is the gymnasium, 55 ft. long and 25 ft. broad; and underneath is a store for wood and iron. In every fireman's house is a bath, supplied with hot water from a steam boiler, which also supplies the water for heating and for domestic use throughout the station. The buildings throughout are lit by electricity. The plans were prepared and the work carried out under the superintendence of Mr. A. B. M'Donald, M. Inst. C.E., City Engineer.

Y.M.C.A. PREMISES, TOTTERDOWN, BRISTOL.—New premises for the Y.M.C.A. at the corner of the Wells-road and Bushy Park, Totterdown, were opened on the 3rd inst. The ground-floor portion of the Wells-road frontage is occupied by a branch of Lloyd's Bank, and comprises a public office, with manager's room, strong-room, lavatory, &c. The Y.M.C.A. portion contains a lounge, opening out of which are the secretary's office, refreshment-room, youths' room (in the basement), and the staircase to the principal rooms. These form a suite, 80 ft. long by 17 ft. wide, and can be sub-divided by folding doors into four separate rooms. On mezzanine floors there are committee-rooms, two bathrooms, and lavatory accommodation. On the second floor there are five bedrooms for members and the caretaker's residence. A lift connects the kitchen with the refreshment-room. The whole building is warmed by hot water and lighted by electricity. Space is reserved on the Bushy Park site for the erection of a large assembly hall and gymnasium, with dressing-rooms, &c. The buildings have been erected by Mr. W. Church; the plumber's work was carried out by Mr. Jollin, and the heating by Messrs. Skinner & Co. The architects were Messrs. La Trobe & Weston, of Bristol.

HOSPITAL, FYLANDS BRIDGE, DURHAM.—The Auckland, Shildon, and Willington joint infectious hospital, near Fylands Bridge, was opened on the 2nd inst. The architect was Mr. W. Perkins, of Bishop Auckland.

CHAPEL, DIOCESAN TRAINING COLLEGE FOR SCHOOLMISTRESSES, DERBY.—The corner-stone has just been laid of a new chapel at the Diocesan Training College for Schoolmistresses, situated on the Uttoxeter New-road, Derby. The chapel, which is being erected at a cost of 2,400*l.*, will be erected over the dining-hall, an apartment also in course of construction. The dining-hall will accommodate, roughly speaking, about 110 persons, whilst the chapel above will seat about 120 worshippers. The new building will be composed of bricks, with Matlock stone dressings. The chapel will be lighted by electricity, this part of the work being in the hands of Mr. Edwin Haslam, electrical engineer, &c., Derby. There will be nine windows of plain glass with leaden frames, and the building will be heated by hot water apparatus supplied by Mr. T. Crump. The walls of the chapel inside will be panelled 8 ft high with pitch-pine, and the pews will be made of the same wood. There will be an organ gallery at the west end of the chapel. The contractors are Messrs. Ford & Co., of Derby. Mr. P. Currey, diocesan architect, is architect for the new building.

SANITARY AND ENGINEERING NEWS.

SEA-WALL, HODBARROW, CUMBERLAND.—The cutting of the first sod in connexion with the construction of a new outer sea-wall at the Hodbarrow Mines, Millom, took place recently. The new wall will extend into the estuary of the Duddo, circling round and touching the mainland again close to Hodbarrow Point. The contractors for the work are Messrs. John Aird & Co., and the engineers Messrs. Coode, Son, & Mathews. The new outer sea-wall is a mile and a quarter in length.

EXTENSION OF A FLOATING CATTLE-STAGE, WALLASEY.—The Wallasey floating cattle-stage has just been extended in order to accommodate vessels of 500 ft. and 600 ft. in length. The stage was originally only 350 ft. in length, but it has now been lengthened by the addition of 250 ft. at the north end. The addition is 70 ft. wide, and consists of twenty-seven pontoons, five kelsons, and 100 deck beams. It was made by Messrs. Francis Morton & Co., Limited, of Garston, and was towed into position on the 7th inst. A lattice girder bridge will connect the stage with the shore.

FOREIGN.

FRANCE.—There has been another unfortunate accident at the Paris Exhibition: owing to some failure of the ground, the statue of the Republic, by M. Granet, in the Grand Palais, has fallen and is broken in two pieces; it has injured in its fall M. Maillard's statue of Icarus, the property of the State.——The new Hippodrome, from the plans of M. Edouard Niermans, was opened on Sunday last.——The work of enlarging the Palais de l'Elysée, in view of the fêtes during the exhibition, is in progress under the direction of M. Chancel, architect; also the formation of a grille along the Avenue Gabriel, after a design by M. Camille Lefèvre, sculptor.——Some important works are to be taken in hand by the Municipal Council of Annecy, with the object of transforming the town into an "Etablissement Thermal." The works will include a general sanitation scheme, especially in regard to the shores of the lake, the filling up of the marsh at Albigny, and the building of a casino.——The death is announced of M. Chas. Bailly, architect, of Nancy.——The death is also announced, at the age of seventy-nine, of M. Andoche Partiot, architect, a former pupil of Blouet. He designed the bathing establishment of St. Honoré-les-Bains and the churches of Saint Péreusy, Ouvroux, and Arleuf. He was a member of the Société Centrale since 1858.

ITALY.—In regard to the opening of the new Museum of Art and Archæology at Milan, we translate the following from the *Secolo* of Milan (May 12):—"The festival of yesterday was as a stone thrown into a calm lake, which agitates the whole surface in a gradually enlarging circle—such was the impression derived from a first visit by the public to the Art Museums that nothing else was talked about for the rest of the day in Milan. It was a revelation of the Art history of Milan, from the nebulous pre-Roman epochs to our days. And together with this is the representation of the domestic life of the city, a thing which is novel even to many of its inhabitants who have been born and bred in it. These art museums will become an agreeable promenade for the citizens, and one of the most instructive and entertaining for both young and old. The inaugural ceremony was brief, and consisted chiefly of the discourse pronounced by Sig. Pisa, who said: 'From June 8, 1877, when the Communal Council of our city accepted with gratitude the bequest of Malachia de Cristoforis, it has been proposed to collect into one place all the various artistic collections scattered about the city. And when a year afterwards the museum was formed in an old edifice in the public gardens, it appeared as if the long-wished-for object had been attained. The large number of gifts made to the school of art annexed to the museum in 1882 soon showed that the existing premises were much too small for the purpose. Also the Archæological Museum of the Brera was becoming too large for its position in the disused church of S. Maria in Brera. Two fortunate circumstances occurred to relieve this state of embarrassment—the abandonment of the ancient castle by the military authorities, and the proposal for its complete restoration and adaptation so valiantly maintained by our distinguished architect Luca Beltrami. The happy co-operation of these two influences has allowed of our occupying the huge castle of the Sforza with our museums of art, of history, and of industries; and thus the spirit of the age finds a not unsuitable home in this old bulwark of a passed-away tyranny.' The speaker also eulogised the munificence of various donors to the museum, and concluded by drawing attention to the flourishing condition of the city of Milan, its arts and industries, and its communal and civic progress. This museum, or rather collection of museums, opened yesterday is one of the most imposing in Italy, and presents a very highly important attraction to the city for the art-loving traveller from the north."

INDIA.—The Sagaing-Monywa-Alon branch of the Burma railways, seventy-one miles in length, was opened the other day. It was commenced in September, 1898, and the chief engineer was Mr. G. Deuchars.——A bridge at Cuttack, which connects the Bengal-Nagpur and East Coast railway systems, has recently been opened. The structure consists of sixty-four spans of 100 ft. girders. The piers and abutments are each founded on one well, 19 ft. 6 in. in diameter, and the average depth of the foundations is 63 ft.——A large part of the Civil Hospital at Gilgit was destroyed by earthquakes on the 4th ult.——It is contemplated that a dry dock will shortly be constructed at Rangoon, at a cost of between 12 and 15 lakhs of rupees. The matter is being undertaken by the British India Company.——An observatory, with astronomer's residence, has recently been erected at Kodaikanal.——The wooden palace of the kings of Burma, in Mandalay, is about to be restored at a cost of 2 lakhs of rupees.——The problem of housing the poorer classes in Bangalore has been solved by extending the boundaries of the city to the south and selling the site of the extension for building bungalows, houses, and bazaars. The extension will, including road making, cost the State about 5.50 lakhs of rupees.——One of the effects of the plague in Bombay is the construction of a large number of houses outside the city not far from the station of Bandora. The dwellings are intended for the middle classes, and will be about 100 in number. Many are detached bungalows, but the majority are semi-detached and have two stories. The sewage will be disposed of by means of septic tanks, which is a rather novel method in India. The architect is Mr. W. A. Chambers, of Bombay.

MISCELLANEOUS.

APPOINTMENT OF SANITARY INSPECTORS.—The Local Government Board have sanctioned the appointment or re-appointment of sanitary inspectors as follows:—Mr. H. J. Bicknell in Islington, Mr. E. W. Flint in St. George-in-the East, Miss L. M. O'Kell in St. Marylebone, Mr. H. R. Child in St. Pancras, Mr. G. W. McQuinn in Holborn.

THE CENTRAL LONDON RAILWAY AND THE LEVEL OF THE SUBSOIL WATER.—The *Lancet* in its issue of May 12 publishes an article entitled, "The Central London Railway and the Subsoil Water," together with some editorial comments upon the same subject. The article raises the question as to what influence the construction of underground railways is likely to exert upon health and property in their vicinity, owing to the probable alteration in the level of the subsoil water, the Central London Railway being taken as an example. Avoiding dogmatic assertions, it discusses possibilities. In order to do this it first considers the geological structure of the soil surrounding the tunnel and shafts. The original physical geographical features of the district are glanced at to prove the more or less saturated condition of the soil. A brief description of the line follows. The results of these arranged facts are summarised and tend to show not only the possibility, but the probability, of a considerable alteration in the level of the sub-soil water having been produced by the construction of the tunnel. The result of this would be the settlement of house property in certain districts and an altered condition of humidity likely to effect disadvantageously the health of the occupants of the houses at the lower level. It concludes by suggesting that before underground railways are more extensively adopted discussion is desirable, that the evils here pointed out may be avoided.

RESTORATION OF INVERNESS TOWN CROSS.—The new base of the Clachnacuddin Stone and Market Cross, which is being restored, was placed in position in front of the Town Hall on the 4th inst. The work is being carried out by Messrs. D. & A. Davidson, sculptors, Inverness, from a design by Mr. J. H. Gall, architect.

REREDOS AND ALTAR, BENHILTON CHURCH, SUTTON, SURREY.—A new reredos and altar have just been added to All Saint's Church, Benhilton. The work is entirely of Devonshire grown oak, and is in the fifteenth century style of Gothic. The reredos rises from the ground, with flanking traceried panels, and above the re-table is divided by ornamental and pinnacled buttresses, with five distinct compartments. The central space is larger, and is carried up above the rest. It has a projecting and groined canopy. The other panels are ogee-headed, and are fitted with tracery in their upper parts, whilst above that is delicately carved work of a conventional character, into which emblems, such as the palm, crown, harp, &c., are introduced. The buttresses on their first splay are diagonal on plan, and the crochetted pinnacles by which they terminate are carried to a considerable altitude. In the central panel of the altar the Lamb and Flag has been carved in high relief. A series of twelve panels represent the apostles, a thirteenth, raised on an eminence and crowned with a nimbus, representing our Saviour. At either side, between sunken and traceried panels, are apple trees. The super altar is also carved. In its centre is a shield bearing the monogram I H S. The shields at either extremity bear the crossed keys of St. Peter and the swords of St. Paul upon them respectively, and in the spaces upon the dexter side are carved leaves, fruit, and tendrils of the vine, whilst on the sinister is the horned wheat. The work was designed by Mr. W. Hilton Nash, and was executed by Messrs. Harry Hems & Sons.

CHANGES IN BLOOMSBURY.—On the large open space which has been lately cleared by the pulling down of the entire west side of Herbrand (formerly Little Coram) street, between Coram (formerly Great Coram) street and Tavistock-place, two blocks of residential flats and bachelors' chambers are about to be erected after Mr. G. D. Martin's plans and designs. The block of flats at the corner of Tavistock-place has already been begun by Mr. A. Gimson, of Hampton Hill, builder and contractor. Extensive improvements and alterations, including class-rooms, laboratory, and library, have been carried out, under Mr. Delissa Joseph's superintendence, at Queen-square House, in Guildford-street, to adapt it for purposes of the Jews'

College, founded fifty years ago by the joint exertions of the late Chief Rabbi and the late Sir Moses Montefiore. The college, which possesses a large and valuable collection of Hebrew manuscripts, constitutes the chief training Seminary for the Jewish clergy in England. It has just migrated from the former quarters at Tavistock House, Tavistock-square*; its new home was at one time occupied by George III.'s physician, and there, it is said, the King was for some while confided to his care. In Tavistock-place the sites of Nos. 32, Albany House, formerly the English Kindergarten and Training School, and 33, together with that of the adjoining chapel, are being cleared for the building, by Messrs. Patman & Fotheringham, of a block of flats and shops, Mr. Foster being the architect. The St. Andrew's Chapel, latterly converted into a cabinet factory was formerly known as the Woburn Episcopal Chapel. Erected about eighty years ago in the pseudo-Gothic style, it formed during some years the church of Archdeacon Dunbar.

BAKER-STREET AND WATERLOO RAILWAY. — A Select Committee of the House of Commons, under the presidency of Sir Ughtred Kay-Shuttleworth, is considering a Bill promoted by the railway company for extending their authorised line at each end, from Waterloo Station to the "Elephant and Castle," and from the Great Central Railway terminus to that of the Great Western at Paddington. The company have scheduled for purposes of a generating station the site of the School for the Indigent Blind in St. George's-road, Southwark The school was originally established at the "Dog and Duck," St. George's-fields, in 1799; when the premises were taken for the building, in 1812, of Bethlehem Hospital the governors acquired a fresh site opposite the Obelisk, erected in 1771 in honour of Brass Crosby, who, as Lord Mayor, was committed to the Tower for releasing a printer who had been illegally arrested under an order of the House of Commons. Some bequests to the charity in 1826-8 enabled the trustees to purchase additional land and to remodel the school buildings after the plans and designs, in the domestic Tudor style, of John Newman (1834). The railway scheme, which includes the construction of subways at Paddington and to the stations of the London, Chatham, and Dover and City and South London at Newington, will cost, it is calculated, nearly 300,000*l.*, together with 9,000*l.* for the southern terminus. For the Blind School a new site will, it is stated, be acquired out of London. Mr. R. S. A. Roumieu was appointed Honorary Architect and Surveyor to the foundation in 1897.

THE KING ALFRED MILLENARY.—Mr. Elliot Stock is about to bring out a facsimile reproduction, in gold or gilded, of the "King Alfred's Jewel," which was discovered, in the year 1693, at Newton Park, some distance northwards from Athelney, near the junction of the rivers Parret and Thone, in Somersetshire, and is now in the Ashmolean Museum, Oxford. Some authorities consider that the mosaic enamelled figure is of greater antiquity than its gold setting, the latter being Saxon workmanship. The male figure, holding a fleur-de-lys in each hand, is covered with an oval piece of rock crystal; the mouth of a grotesque sea-monster holds a small circular tube, through which passes a gold rivet—the supposed fastening for the end of a sceptre or staff. The figure is variously taken to represent our Saviour, St. Neot, or St. Cuthbert.

MEMORIAL BUST OF CARLYLE, CHELSEA.—A marble bust of Thomas Carlyle has just been placed in Carlyle House, at Chelsea. It is the work of Mr. D. W. Stevenson, R.S.A.

GLASGOW INTERNATIONAL EXHIBITION, 1901.—Since the first sod of the International Exhibition which is to be held in Glasgow next year was cut on April 22, 1899, steady progress has been made, and both the architect, Mr. James Miller, and the engineer, Mr. Thomas Young, are confident that the work will be completed long before the official opening is due in May. One of the principal features of the Exhibition, the New Art Gallery and Museum, is fast being completed, and will have cost when finished a quarter of a million sterling. This palace, which is built on the banks of the Kelvin, will contain loan collections illustrative of the progress of art during the nineteenth century, as well as a historical and archæological section of special interest. Including the Art Gallery, which is, of course, a permanent building, and will in future be used as the home of the Corporation's art treasures, the Exhibition buildings will cover an area of twenty acres. The Industrial Hall is well forward; an ordinary bridge connects it with the Machinery Hall, which is also well advanced, and very soon a commencement will be made with the bridges, Grand Avenue, and Concert Hall, the last-named having accommodation for 5,000 people. The exhibits are to be thoroughly international in character, Europe, Asia, Africa, and America being represented. Owing to the necessity of early allotment, Mr. Hedley, the general manager, announces that all applications for space must be lodged not later than the 30th of this month, so that the committee in charge of this important department may be in a position to proceed with the work. The principal cities of England, Scotland, and Ireland have promised to give every assistance and it may be mentioned that the British Association, the Institute of Mechanical Engineers, the Society of Engineers and Shipbuilders, and other scientific bodies, will hold their annual meetings in Glasgow during the run of the Exhibition.

PROFESSOR LEWES ON THE INCANDESCENT GAS MANTLE.—In his second lecture on the incandescent gas mantle, delivered on Monday last before the Society of Arts, Professor Lewes discussed the various theories which have been advanced to account for the evolution of brilliant light by mantles of certain earthy oxides heated by a non-luminous gas flame. Bunte's catalytic theory appears to be, the most satisfactory, but even this does not explain all the facts observed in connexion with the manufacture of these mantles. The lecturer also exhibited, by means of the optical lantern, a number of micro-photographs of the filaments of mantles after ignition. He showed that mantles made by the Knoffler process, in which the mantle is made of collodion thread impregnated with the salts of thorium and cerium partly in solution and partly in suspension, are formed of solid oxide filaments instead of the tubular filaments seen in Welsbach mantles. The Lehner mantle which is made in a somewhat similar manner to the Knoffler mantle, but with the aid of artificial silk in place of collodion thread, showed even denser filaments than those possessed by the Knoffler mantle. It was stated that these solid filaments yield a mantle which retains its high light-emissivity for a much larger period than the Welsbach mantles. The most striking exhibit of the evening was a Lehner mantle which the lecturer stated had been burning for over three thousand hours in his laboratory, and which still emitted a more brilliant light than a good Welsbach mantle.

INTERNATIONAL CONGRESS OF HYGIENE.—The tenth International Congress of Hygiene and Demography will be held in Paris this year from August 10 to 17 under the presidency of Dr. Brouardel, Dean of the Faculty of Medicine of Paris. Among the subjects which will be discussed at the Congress under the head of *Hygiene* are the following: engineering and architecture in reference to hygiene; industrial and professional hygiene and insanitary houses; cremation; hygiene of transport (in vehicles, ships, &c.). There will be, as usual, a separate section of Demography. The price of a member's ticket is 20s. Programmes and forms of application for membership can be obtained from the Secretary of the British Committee, Dr. Paul F. Moline, 42, Walton-street, Chelsea, S.W. Special arrangements for travelling will, it is hoped, be made.

SIR ARTHUR BLOMFIELD'S GRAVE.—A memorial has been erected on Sir Arthur W. Blomfield's grave in Broadway graveyard, Worcestershire. The monument, and the curbing that surrounds it, is constructed entirely of hard Irish (Ballinasloe) limestone of a grey hue. It consists of three steps cut in one solid stone, surmounted by a tall monolith cross of Celtic character, ornamented on its upper part by strap ornament. The stonework is not polished, but has the chisel marks showing. The inscription, in metal letters, is on the steps. The monument is a replica of one designed by the late Sir Arthur a few years ago for the grave of a relative. Messrs. Harry Hems & Sons, of Exeter, carried out the work under the supervision of Messrs. C. J. and A. C. Blomfield, M.A.

ACETYLENE PURIFICATION.—We have received from Messrs. Lockerbie & Wilkinson, Limited, Birmingham, a descriptive price list of their "Thorlite" acetylene purifiers and burners. Where acetylene is employed for the internal illumination of buildings a white "haze" is sometimes observed around the flame, and in badly-ventilated rooms this haze accumulates and forms a most objectionable fog. The haze is due to the presence of some impurity in the acetylene. We have heard it stated that if the gas be thoroughly dried before consumption no haze is produced, while others declare that it is necessary to purify the gas from the small proportion of phosphoretted hydrogen commonly present in acetylene produced from commercial carbide. Several purifiers have been devised which completely eliminate the haze producer, and 'Thorlite' purifying material claims to be both efficacious and harmless to the fingers and clothing. It is supplied at 1s. per lb., and it is stated that one pound is sufficient to purify the gas yielded by 1 cwt. of carbide. If the gas be really purified by passing through an efficient purifying material, and does not merely flow over a tray containing the material, there is little doubt that purification may be of service not only in removing impurities, but also in prolonging the life of acetylene burners which are notorious for the speed with which their orifices become choked.

CAPITAL AND LABOUR.

DISPUTE AS TO TERRA-COTTA, BARROW.—A curious dispute has arisen between the bricklayers and masons engaged in erecting the County Council technical schools at Barrow-in-Furness. The bricklayers have objected to the masons "setting" the terra-cotta front of the building, as they argue that it is their work, because "the terra-cotta is made of clay." The masons met to consider the question and the bricklayers have decided to go on strike unless the work is handed over to them.—*Daily Mail.*

JOINERS' DISPUTE, STOCKTON.—The matter in dispute between the Stockton house joiners and their employers, namely, the time at which the joiners should start work in the mornings, has been amicably settled. Commencing June 1, the men will commence work at 6.30 and not at 6 a.m. as claimed by the workmen.

EMPLOYMENT IN THE BUILDING TRADES DURING APRIL.—Employment in the building trades, says the *Labour Gazette*, has still further improved, and is good in most branches. The percentage of unemployed union members among carpenters and plumbers at the end of April was 2·2, compared with 2·6 in March, and 1·3 per cent. in April of last year. During the month there were commenced twenty-one disputes, mostly in regard to wages. Six of these disputes were in Scotland, the rest being in various parts of England. The majority have now been settled.

STRIKE OF DUNFERMLINE MASONS. — The agreement between the Dunfermline master masons and their operatives concluded on the 14th inst. The masters met some time ago, and agreed to ask the abolition of certain conditions and a reduction of a penny per hour. At a meeting on Monday the masters agreed to offer a compromise—namely, to allow the old conditions to continue and to make the reduction only one halfpenny per hour. By a small majority the men agreed to refuse this offer, and they came out on strike. The wage for the past year has been from 9d. to 9½d. per hour, and now the masters offer from 8½d. to 9d.

THE CARPENTERS' STRIKE IN BELFAST. — In connexion with the strike of carpenters and joiners in the building trade in Belfast, twenty-four of the employers, it is stated, have acceded to the revision of the rules, some of the firms having a large number of workers. Communication has also been opened up between the Builders' Association and the Managing Committee of the Amalgamated Society of Carpenters and Joiners, and a meeting to further consider matters will be held at an early date.

DUNDEE JOINERS.—The Dundee Master Joiners' Association have intimated to the Operative Society their intention of reducing wages by ½d. per hour. On the part of the employers it is felt that the present prospects of the trade render such a step imperative. Orders have of late been few, and all circumstances seem to point to the conclusion that the "boom" in the building trade so conspicuous in the city during the past two or three years is now at an end, the supply of house property being quite equal to if not actually exceeding the demand. The advocates of a reduction also point to the fact that there has been no easing of the prices of material. The current rate of wages is 9d. per hour. In accordance with the understanding between the employers and operatives the reduction will take effect three months hence. It is understood that the non-associated firms of master joiners will fall into line with the Masters' Association.

THE PERTH PAINTERS' STRIKE.—The masters and men held a conference in the Grand Hotel, Perth, recently. The proceedings were private, but, so far as is known, nothing of a definite nature towards a settlement in this strike took place. It is stated, however, that the masters presented two new rules, which are to the effect that they will be at liberty to hold workmen responsible for defective work. To this the men dissented. The masters further ask that their workmen be prohibited from doing jobbing work on their own account. To this rule the men agreed, except that they still reserve the privilege to do work for friends or relations. Several of the men have left Perth for other towns, and the secretary has received telegrams from most of them stating that they have been successful in obtaining employment.

LABOURERS' STRIKE, CHELTENHAM.—About 200 builders' labourers came out on strike on Saturday last for a higher wage. Some three or four years ago the rate was generally raised from 4d., 4½d., and 4½d. to 5d. an hour, though some of the firms did not advance beyond 4½d. The men now want an increase on 5d., and, while willing to go to arbitration as between 5d. and 6d., decline to submit to arbitration as between 4½d. and 6d. The masters, on the other hand, refuse arbitration unless 4½d. an hour is taken as the starting figure.

LEGAL.

BUILDING LINE DISPUTE AT EASTBOURNE.

THE case of the Queen *v.* the Mayor, Aldermen, and Burgesses of Eastbourne came before a Divisional Court of Queen's Bench, composed of Justices Ridley and Darling, on the 12th inst., for argument calling upon the Mayor, Aldermen, and burgesses of Eastbourne, acting by the Council of the borough, as the Urban Sanitary Authority, to show cause why a writ of mandamus should not issue directed to them commanding them to approve and signify in writing their approval of the building line as shown on the plans sent by

* The residence of James Perry when editor of the *Morning Chronicle*, of Charles Dickens, and, in 1818, of Miss Mitford. Dr. Niblock dates the preface to the second edition of his English and Latin Dictionary; "London ,High School, Tavistock House, Tavistock-square, October, 1836."

Mr. John Arthur Wright to the Urban Sanitary Authority on January 8 last for the construction by him of a block of buildings for the purpose of residential flats upon certain land adjoining the house, called Mixbury House, at Hartington-place, in the borough.

Mr. C. A. Russell, Q.C., and Mr. Boxall appeared for the Mayor &c. of Eastbourne; and Mr. Macmorran, Q.C. and Mr. B. A. Hall in support of the rule.

Mr. Russell contended that the mandamus would not lie. The Council had, as a matter of fact, decided that the house would be beyond the front main wall of the house or building on either side of it, contrary to Section 3 of the Public Health (Buildings in Streets) Act, 1888. If the Council had honestly exercised their discretion upon proper materials the Court would not interfere even if it thought that upon the facts it would have come to a different conclusion. In Eastbourne there were many streets with detached villas on both sides. Under Section 3 of the Act of 1888 the Council had to consider whether the proposed new building was in a street, and was being brought forward beyond the front main wall of the building on either side.

Mr. Macmorran, Q.C., contended that the case of Smith *v.* the Chorley Rural Council, relied upon by his learned friend, was wrongly reported or applied.

After further discussion their Lordships felt themselves bound by the judgment in Smith *v.* the Chorley Rural Council, and that the rule must be discharged.

The rule was accordingly discharged.

HEAVY DAMAGES AWARDED TO A BRICKLAYING CONTRACTOR.

THE case of Holdsworth *v.* Willsmer came before Mr. Justice Grantham and a special jury in the Queen's Bench Division on the 11th inst.

It appeared that the plaintiff, Mr. William Holdsworth, was a bricklaying contractor of Walthamstow, and the defendant, Mr. George Willsmer, was a timber merchant, also of Walthamstow. The defendant had given the plaintiff a contract to do the bricklaying at some house at Leyton, and the plaintiff had to provide his own scaffolding. Disputes arose between the parties as to the manner in which the work was to be carried out, and finally the plaintiff complained that the defendant would not supply any more bricks, and gave up the work. The plaintiff sent two men for his scaffolding, and after it had been taken to his yard the defendant brought the police and charged him with stealing some wooden poles. Mr. Holdsworth said that if his men had taken anything of Mr. Willsmer's it was by mistake. The magistrates at Stratford dismissed the case without calling on the defence for an answer to the charge.

In the result the jury awarded the plaintiff 50*l.* damages, and judgment was given for him for this amount, less 30*l.* 19*s.* 6*d.* which had been paid into court in connexion with a counter-claim for work done.

Mr. Abinger and Mr. Jenkins appeared for the plaintiff, and Mr. Arthur Powell for the defendant.

CLAIM FOR PERSONAL INJURIES:

"THE PURE ACT OF GOD."

AN interesting case to builders was heard at the Edmonton County Court last week. Benjamin Howe, bricklayer, of 19, Pembury-road, Tottenham, brought an action against Messrs. Grounds & Newton, builders, of Winchelsea-road, Tottenham, to recover 150*l.* as damages for personal injuries sustained through the negligence of the defendants or their representatives. Mr. Glasgow represented the complainant, and Mr. Le Riche was counsel for the defence.

The defendants were carrying out some drainage works at the rear of Siddon's-road, Tottenham, at the time of the accident, and defendant was in their employ at the wage of 1*s.* 3*d.* per hour, his average earnings, he said, being 3*l.* 10*s.* per week. The accident happened on November 3 last year. The complainant was doing the brickwork in an inspection chamber, close to which a sight board had been fixed by attaching it to two pieces of scaffold poles. The poles were placed in 9-in. drain pipes and made ready by filling the pipes up with earth. While plaintiff was bending down first one of the poles struck him across the back, and then the other fell on to his shoulder. His shoulders, ribs, and back were severely bruised, and he attended the hospital as an outpatient up till February 24, since when he had done odd jobs. Now he had obtained regular employment at 10*d.* per hour. As a result of the injuries he had suffered from sleeplessness, continually having pains, and had to wear a bandage. He estimated the length of the poles that fell on to him at 13 or 14 feet and their width at 4 inches. The ground for the allegation of negligence was that the poles were not properly fixed.

Plaintiff said they should have been put into the ground instead of pipes.

An expert witness named Crank corroborated on that point.

The defence disputed the dimensions of the poles as given by complainant, it being stated that they were smaller than he wished to make out. It was contended that it was the usual practice to put the poles in drain pipes, and that these in question were for all ordinary purposes securely fixed. That they fell was the pure "act of God." The wind was high and gusty, and blew them over. The sight-board came away from one of the uprights and struck the plaintiff, and then the other pole fell on him. The defendants paid the plaintiff 1*l.* a week until January 27, and then ceased to do so because they asserted that the doctor said he was able to work.

Mr. Grounds, one of the partners, said that plaintiff was paid at a special rate, and the job was within two days of completion when the accident happened. The poles were in the pipes two or three days before they fell.

Mr. Cant, a clerk of the works for the District Council, was called in support of the defendant's case, but he admitted that these pipes were not large enough for the purpose.

The jury who tried the case found that there was negligence on the part of the defendants on the ground that the pipes were not large enough. Taking into consideration that the defendants had already paid the plaintiff 12*l.* they awarded him 13*l.*

A verdict for that amount with costs was accordingly entered.

CLAIM FOR INJURIES.

AT the Clerkenwell County Court on Monday, before His Honour Judge Edge, the case was heard of Arthur Littlefield, carpenter, 28, Woodpecker-road, New Cross, *v.* Messrs. Patman & Fotheringham, builders, 100 and 102, Theobald's-road, W.C. This was an action under the Employers' Liability Act, plaintiff claiming the sum of 50*l.*, damages for personal injuries. Mr. Chester Jones was counsel for the plaintiff and Mr. McIntyre represented the defendants.

Mr. Chester Jones explained that it was an action to recover damages for injuries which the plaintiff had sustained to his head through a breakage of the ceiling joists on which he was working. The accident occurred on December 19 last year, notice was given to the defendants, and the present claim was made, the defendants refusing to give any compensation either under the Employers' Liability Act or the Workmen's Compensation Act. The plaintiff was engaged in fixing ceiling joists at works which were in progress for Messrs. Jones & Higgins, drapers, of Peckham Rye, and there were lantern lights the whole length of the building, supported by girders. One of those joists fell on the plaintiff's head, and the man was now in an unfit condition to work, the doctor being unable to say when he would be able to return to work.

Plaintiff gave evidence supporting his counsel's statement, and said he was not provided with any planks at all.

Dr. Pinder, of New Cross-road, stated that the plaintiff came to his surgery on December 20, the day after the accident, having sustained injury to his head and right shoulder, besides some concussion of the brain, and witness did not think that he had now improved much.

Mr. McIntyre submitted that there was no evidence of negligence under the Employers' Liability Act, as there was no proof of defect.

The Judge said the case must go on, and counsel then called the general foreman for the defendants, and he stated that he did not see the plaintiff at work on the day in question. The joists in question ought to have been spaced from underneath.

The foreman carpenter deposed to giving instructions to the plaintiff and another workman as to the way in which the joists should be spaced; and he left them to arrange how the work should be done.

Medical evidence for the defendants showed that there were no symptoms of suffering on the part of the plaintiff, and that it would do him good to now resume work. Mr. McIntyre submitted that it was not shown that there had been any defect under the Act which the defendants had failed to remedy.

The Judge said that the evidence which had been adduced before him showed that the plaintiff walked from joist to joist with the intention of getting on with his work; but it was an imprudent thing to do, and under the circumstances he must enter a verdict for the defendants. An application was also made under the Workman's Compensation Act, provided he was of opinion that the plaintiff came within that Act. But the building was 23 ft. high only, a low building between two high buildings, and the question arose whether the plaintiff was not engaged on a building that exceeded 30 ft. in height; and for those reasons he must dismiss the plaintiff's application. He thought that at the time of the accident there was not a building 30 ft. in height being constructed, and he felt that he was bound by a decision on the point. The mere fact that there was a communication between the higher and the lower building did not bring it within the Act.

RECENT PATENTS:

ABSTRACTS OF PATENTED INVENTIONS.

825.—ELECTRICAL CURRENT METERS: *A. F. Harris.*—Two flat circular coils between flat pole-pieces and a pointer are carried by an axle which is sustained between the jewelled bearings in bridges upon two permanent magnets or electro-magnets, the current being supplied to the coils through insulated spiral-controlling springs. A half-rounded scale over which the pointer moves is mounted upon the brass holders of the magnets; in this instrument, which is specified as being adapted for a volt-meter or an am-meter alike, the forms of the coils and pole-pieces may be altered so as to produce any scale that may be desired, or one balanced coil and a magnet can be used.

877.—FLUSHING APPARATUS, VALVES, &C.: *F. Shanks.*—A weight, to be raised by either a lever or a pull attached to the door, retains the flushing-valve upon its seating, and the water is kept at a constant level in the basin by means of a passage which joins the basin to a chamber that contains a float, which carries a valve. For ball and float valves a pivoted lever, whose lower end is joined to the float-arm, moves the plunger, a short link being put between the fixed pivot and the float-arm's inner end.

889.—A CLAY EXCAVATING AND MOULDING MACHINE: *F. G. Harster.*—The combined machine consists of a frame, to be drawn over the field of clay, which carries a wheel upon which is mounted a knife that cuts and carries a layer of clay round to another knife which scrapes the slice of clay on to a carrying-band which runs beneath a moulding-wheel; the specification extends to various adaptations of the principle of the invention, including, for example, the substitution of a wire for the cutting-knife, the support of the moulding-table upon arms so that it may rest on either one side or the other of the wheel (in a machine that can be drawn in both directions), the receiving table being arranged to correspond therewith, and in making the excavating and moulding portions of the machine as separated parts. In the last-named adaptation a wire scrapes the clay from the one band to on another so that the clay is carried through a pipe-mould fitted with a mandrel, rolls, and seam-closer.

911.—LIFT VALVES: *W. R. Stevens & E. White.*—For the purpose of holding a ball-valve down upon its seating, which is curved, the inventors screw down a curved piece which is fastened with a pin on to the screwed portion of the valve's spindle.

942.—URINALS: *W. E. Mason & H. E. Mason.*—A common trough is provided for every section of the stalls, the trough being flanged at intervals so as to form a series of bowls and fashioned with dripping edges, and the partitions being made with an increased width near the bowls. A certain depth of water in the trough is afforded by using weirs which guard the entrance into the discharge-pipe, and floor-channels are made to drain into the outlet.

950.—CIRCULAR KILNS FOR BURNING POTTERY, &C.: *O. Wundrack.*—Beneath the grates is an annular space, divided by bridges into sections, into which (through radiating passages or channels) pass the air and gases from the middle chamber of one of the kilns—the kilns being arranged so as to form a continuous series or group through which the products of combustion shall pass in turn; when the gases, air, &c., have travelled through one kiln they escape through an annular flue and a central aperture, and so into the chamber of the next adjoining kiln; for making a complete circuit the kilns are placed in two rows.

962.—ELECTRICAL ARC LAMPS: *W. Crudgington.*—The glass globe is filled with nitrogen, carbon monoxide, or other indifferent gas, and exhausted, in order to prevent the electrodes from being consumed and to increase the production of light; of the carbon electrodes that are mounted within the sealed globe the upper one can be carried by the core of a series coil so arranged as to strike the arc.

1,014.—WINDOW-FASTENINGS: *B. Hausmann.*—At one side of the frame the sashes are hinged on to rabetted sliding stiles; at the frame's other side they are joined to similar stiles by means of bent tongues that engage with loops; the latter stiles are held with stop-pieces that engage with slots in the stiles when the sashes are turned upon their hinges, but are to be thrust into recesses in the pulley stiles when they (the stop-pieces) are not needed; a hooked catch upon each stile engages with a plate of the pulley stile, serving to support the sash when it is turned inwards, but as the sash is again turned backwards, the stile touches a tail of the catch which thereby is automatically put out of action.

1,028.—LOCKS: *S. Shaw.*—The tumblers have recesses which engage with two ribs of a yoke which is fastened on to bolt, and they are pivoted loosely on to a pin set between fixed plates, whilst their other recesses engage with the second rib and so hold the bolt when unlocked; in order to unlock the bolt, the key and the tumbler-cylinder are turned towards the right hand so that the tumblers become freed from the ribs, whilst a lever turning upon a pin moves the bolt, as engagement is effected between the lever's forked end and a pin upon the cylinder.

1,042.—PIPE COUPLINGS: *J. Backhouse.*—The inventor furnishes a junction-piece for the delivery of differently-sized jets from a single tap or similar source; it is made with a hollow body, which has three or more branches whose diameters are different, and which are to be closed with screwed caps or externally-screwed plugs. After the caps have been taken off, one branch is joined to a tap with flexible tubing, and similar tubing is adjusted on to the other branches of the junction-piece.

1,059.—OPENING AND CLOSING OF HINGED WINDOWS, DOORS, SHUTTERS, &C.: *H. C. Pruce.*—For hinged windows are employed two cylinders having their pistons upon the opposed ends of a rod which is linked to a lever upon another rod, which again is joined to the window with levers and links; the window may be opened or closed by forcing air into the one or the other of the two cylinders, for which, however, one doubly-acting working cylinder may be substituted; in the latter modification the cylinder is formed of two tubes (whereof one slides within the other), fitted with an inner elastic tube or sack, which is fastened, air-tight, on to the bottom of the two tubes; the air-compressing cylinder and the air-exhausting cylinder have, apiece, non-return valves, and either of them may be connected by means of a tap to the pipe which leads to the working cylinder.

1,098.—TOPS OF VENTILATING SHAFTS: *L. H. Honigbaum.*—At the top of the uptake is arranged a polygon-shaped head or cover, which is closed in part at its top with a double cone, and has an opening in each of its faces. The hinged doors of the several apertures are joined together in pairs with rods in such a manner that when one is closed the other is held open by the blowing wind. The hinge pins rest upon balls in sockets.

1,205.—A TANK FOR COLD-WATER STORAGE: *F. F. Waller.*—The bottom of the sealed tank inclines to the outlet at its central point, and the ball valve may be joined to a manhole cover or lid; a water-seal between the outer air and the tank is effected by an air-trap, which serves, moreover, as an overflow; when the water falls in the tank air enters through a pipe at the side and flows beyond the trap, but the seal is made again when the water rises, and as soon as the air within the tank has enough pressure it escapes again through the trap; the trap is to be re-filled with water through a little hole made in the trap's inner wall at a level with that of the water at its normal heighth; in the case of the valve leaking and the water rising the excess overflows through the trap, whereby the pressure in the tank is prevented from approaching the pressure in the main pipe.

1,260.—STAND-PIPES AND HYDRANTS: *D. B. Hislop.*—For opening the ball-valve is adopted a handle or lever, with projecting pins for engagement with helical grooves in an extension of the stuffing-box gland, and when it is opened an annular recess engages with the pins, the stuffing-box is extended so as to form a cylinder for a leather-packed piston, in order that the valve may neither close too quickly nor cause shocks in the pipes.

1,264.—GULLY TRAPS: *G. W. Kirk.*—For making a water-seal the inventor uses a side-plate, which is allowed to slide within grooves made of lead or other suitable material.

1,275.—WINDOW SASH FASTENERS: *A. Illidge.*—The spring of a sash fastener takes the shape of a metal tongue which has been stamped out of the box casing with which it is integrally fashioned.

1,302.—MANUFACTURE OF CEMENT: *L. Grabau.*—Welsh or similar slate, together with unburnt limestone, are, in the first instance, ground to a fine powder and well mixed together. The admixture is then wetted and moulded or pressed, some cement being added to make it bind together. The blocks are next burned in a furnace, and are then ready for being ground into cement.

MEETINGS.

FRIDAY, MAY 18.

Institution of Junior Engineers.—A Paper by Mr. Basil H. Joy and Mr. Charles H. Rush, entitled "A Short Review of the Motor-Car Industry." 8 p.m. This Paper, announced for May 4, has been, at the request of the authors, postponed by the Council as above, in order that the results of the 1,000-mile trials, arranged by the Automobile Club, may be dealt with in the appendix to it. Mr. Bertram C. Joy, announced as the joint author of the Paper, being prevented by illness from attending to it, his brother has kindly taken his place.

Royal Institution.—Professor J. A. Ewing, M.A., F.R.S., on "The Structure of Metals." 9 p.m.

MONDAY, MAY 21.

Royal Institute of British Architects.—Mr. J. M. Brydon on "The art of the late Professor Cockerell." 8 p.m.

Surveyors' Institution.—Mr. E. H. Blake on "Extras and Omissions in Building Contracts." 8 p.m.

Society of Arts (Cantor Lectures).—Professor Vivian B. Lewes on "The Incandescent Gas mantle and its use." III. 8 p.m.

Liverpool Architectural Society.—Annual general meeting. (*a*) A discussion on the advisability of the Society becoming incorporated. It is proposed by the Council that—1. Rule No. 35 be altered to read as follows:—"The Council shall have power to appoint Committees for various purposes, which shall be under the control of the Council, and to whom they shall make annual reports." 2. Rule No. 36 be omitted. (*b*) Annual report of Council and financial statement. (*c*) Election of officers and council for the fifty-third session. (*d*) Closing address by the President, Mr. E. A. Ould. 6 p.m.

TUESDAY, MAY 22.

Society of Arts (Applied Art Section).—Mr. E. F. Strange on "The Practice of Lettering." 8 p.m.

College for Men and Women, 29, Queen-square, Bloomsbury (Free Lectures on Architecture).—Mr. E. S. Prior on "Canterbury Cathedral." 8.30 p.m.

THURSDAY, MAY 24

Carpenters' Hall, London Wall (Lectures on Carpentry and Joinery).—Mr. J. Bartlett on "The Setting-Out and Construction of Staircases." 7.30 p.m.

Institution of Electrical Engineers (at the Society of Arts).—Annual general meeting, to receive the annual report of the Council and statement of accounts and balance-sheet. 8 p.m.

FRIDAY, MAY 25.

Royal Institution.—Mr. F. Fox, M.Inst.C.E., on "The Great Alpine Tunnels." 9 p.m.

SATURDAY, MAY 26.

Incorporated Association of Municipal and County Engineers.—Northern District Meeting, Carlisle.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

May 3.—By DOWSETT, KNIGHT, & Co. (at Brighton).

Heathfield, Sussex.—Vine's Cross, four freehold cottages, and 5 a. 2 r. 35 p. £660

May 4.—By ALEX PHILLIPS.

Hampstead.—77, Hillfield-rd., u.t. 72 yrs., g.r. 7*l.* 7s., e.r. 50*l.* 500

52, Mazenod-av., u.t. 95 yrs., g.r. 12*l.* 12s. 520

Kilburn.—1 to 5, The Terrace, u.t. 62 yrs, g.r. 28*l.* r. 138*l.* 1,255

Northwood, Middlesex.—6, Rofant-rd., u.t. 95 yrs., g.r. 4*l.*, r. 28*l.* 300

By ROUCH, PARKHOUSE & LUCK.

Highgate.—67, Cromwell-av., u.t. 61 yrs., g.r. 10*l.* 10s., r. 65*l.* 640

Crouch End.—73, Middle-lane, u.t. 58½ yrs., g.r. 9*l.*, r. 50*l.* 500

By C. CANEY.

Holborn.—10 and 12, Princeton-st., with stabling in rear, u.t. 23½ yrs., g.r. 50*l.* 175

Grays, Essex.—Palmer's-av., eight plots of building land, f. 355

Walworth.—78, Mann-st., 51 yrs., g.r. 4*l.* 10s. 275

By ERNEST OWERS.

Hampstead.—Pla t's-lane, Fernleigh, u.t. 996 yrs., g.r. 35*l.*, e.r. 175*l.* 2,250

By T. B. WESTACOTT.

Hackney.—338 and 340, Mare-st., f., r. 125*l.* 2,200

Hampstead-rd.—No. 113, f., r. 120*l.* 2,410

Brondesbury.—Gladstone-mews, i.g.r. 15*l.*, u.t. 66 yrs., g.r. 2*l.* 10s. 255

May 5.—By W. BROWN & Co. (at Aylesbury).

Linslade, Bucks.—Two closes of land, 4 a. 1 r. 6 p., f. 510

Bierton, Bucks.—Four closes of land, 8 a. 3 r. 12 p., f. 900

May 7.—By WILLIAM HOUGHTON.

Walthamstow.—Tower Hamlet's-rd., Rose Cottage, f. 610

Tower Hamlet's-rd., Enclosure of building land, f. 310

Brown's-rd., two enclosures of building land, f. 640

Bethnal Green.—35, 37, and 39, Cleveland-st., and 1, 3, 5, and 7, Whitehead-st., u.t. 11½ yrs., g.r. 28*l.* 230

By GOODMAN & CROWTHER.

Stoke Newington.—16, Filey-av., u.t. 81 yrs., g.r. 6*l.* 10s., e.r. 42*l.* 470

Stamford Hill.—56, Darenth-rd., u.t. 82½ yrs., g.r. 6*l.*, r. 44*l.* 570

By C. V. STEVENS.

Kennington.—38, 40, and 42, Harleyford-rd., r. 121*l.*; also l.g.r.'s 30*l.*, u.t. 6½ yrs., g.r. 45*l.*... 210

Lambeth.—48 to 52, 55, and 56, Bird-st., f. 1,800

By THOMAS, PEVER, & MILES.

Great Grimsby, Lincs.—The Wellow Brewery, with nineteen tied houses, f. and l. 23,000

Bruton, Somerset.—The Bruton Brewery, with twelve licensed houses attached, f. and l. 12,000

By H. J. BROMLEY.

Greenwich.—15, 16, 18, 19, 24, 25, and 26, Woodlands Park-rd., u.t. 55 yrs., g.r. 36*l.* 15s. 1,700

18 to 26 (even), Devonshire-rd., u.t. 77 yrs., g.r. 25*l.* 10s. 1,855

New Cross.—53, 55, 61, and 63, Malpas-rd., u.t. 64 yrs., g.r. 18*l.* 1,200

77, 79, and 81, St. Donnatt's-rd., u.t. 64 yrs., g.r. 12*l.*, r. 84*l.* 860

Brockley.—Harcourt-rd., i.g.r. 17*l.*, u.t. 74 yrs., g.r. 4*l.* 8s. 260

27 and 28, Harcourt-rd., u.t. 74 yrs., g.r. nil, r. 64*l.* 780

73 and 75, Foxberry-rd., u.t. 74 yrs., g.r. 7*l.* 10s. 475

9, Charlotte-villas, u.t. 77 yrs., g.r. 3*l.*, r. 26*l.* .. 270

Forest Hill.—314 to 322 (even), Stanstead-rd., r. 152*l.*; also l.g.r. 6*l.*, u.t. 75 yrs., g.r. 23*l.* 10s 1,665

1 to 11 (odd), Blythe-vale, u.t. 75 yrs., g.r. 27*l.* 1 s.. r. 135*l.* 1,180

43 to 57 (odd), Blythe-vale, u.t. 75 yrs., g.r. 44*l.*, r. 208*l.* 2,050

By A. A. HOLLINGSWORTH.

Stepney.—Duckett-st., f.g.r. 13*l.* 10s., reversion in 6½ yrs. 650

Duckett-st., f.g.r. 50*l.* 10s. reversion in 31 yrs... 115

Ocean-st., "The Britannia" p.-h., f.g.r. 3*l.*, reversion in 6 yrs. 860

Ocean-st., f.g.r. 51*l.* 12s., reversions varying from 5½ to 7 yrs. 3,780

By DEBENHAM, TEWSON, & Co. (at Burgess Hill).

Burgess Hill, Sussex.—Junction-rd., two plots of land, f. 180

Ditchling, Sussex.—Town Mead, 6 a. 2 r. 39 p., f. 350

May 8.—By H. DONALDSON & SON.

Walworth.—3, 5, 7, and 9, Chatham-st., u.t. 62 yrs., g.r. 24*l.* 1,220

Clapton.—192, Amhurst-rd., u.t. 47 yrs., g.r. 7*l.*... 660

Stoke Newington.—7, Goldsmith-sq., u.t. 51½ yrs., g.r. 2*l.* 305

Dalston.—233, Queen's-rd., u.t. 13½ yrs., g.r. nil, r. 40*l.* 240

20, Parkholme-rd., u.t. 43 yrs., g.r. 5*l.* 10s., r. 38*l.* 410

By HENRY H. COLLIER.

Acton.—Fletcher-rd., f.g.r. 12*l.*, reversion in 98 yrs. 300

Stanley-rd., a plot of building land, f. 300

By ELSWORTH & KNIGHTON.

Brompton.—40, Montpelier-st., u.t. 36 yrs., g.r. 9*l.*, r. 95*l.* 1,165

By W. R. NICHOLAS & Co.

Anerley.—196, Anerley-rd., u.t. 21 yrs., g.r. 15*l.*, e.r. 75*l.* 450

By LUMLEY, NEWTON, & Co.

Hyde Pk.—4, Craven Hill, f. £4,350

By NIGHTINGALE, PHILLIPS, & PAGE.

Walton-on-Thames, Surrey.—Crutchfield-rd., Elthorne, f., e.r. 32*l.* 460

By WESTON & SONS.

Brixton.—2 to 10 (even), Cambria-rd., u.t. 41½ yrs., g.r. 20*l.* 1,015

1 to 9 (odd), Lewis-rd., u.t. 41 yrs., g.r. 20*l.* 995

1 to 7 (odd), Lewis-rd. East, u.t. 41 yrs., g.r. 16*l.* 790

45, Loughborough-rd., u.t. 14 yrs., g.r., &c., 6*l.* 3s. 6d., e.r. 50*l.* 275

Camberwell.—Denmark-st., i.g.r. 62*l.* 2s., u.t. 11 yrs., g.r. 21*l.* 4s. 325

By WILKINSON, SON, & WELCH (at Brighton).

Brighton.—74, London-rd., area 8,650 ft., f., r. 80*l.* 4,500

9, North-st., beneficial lease for 19 yrs., r. 200*l.* 300

By JAMES T. PEAT (at Reigate).

Reigate, Surrey.—2, South-villas, f., e.r. 35*l.* 375

May 9.—By PERCY H. CLARKE.

Fulham.—14, Tyrawley-rd., u.t. 87½ yrs., g.r. 6*l.* 410

By FURBER, PRICE, & FURBER.

Bethnal Green.—41, Bethnal Green rd., area 4,280 ft., f., r. 125*l.* 2,500

City of London.—Farringdon-st., f.g.r. 120*l.*, reversion in 70½ yrs. 3,050

Bear-alley, f.g.r., 80*l.*, reversion in 70½ yrs. 2,000

Lambeth.—Royal-st., &c., i.g.r. 53*l.* 10s., u.t. 24 yrs., g.r. 30*l.* 8s. 9d. 170

By FULLER & FULLER.

South Kensington.—17, Manson-mews, u.t. 89 yrs., g.r. 5*l.*, r. 40*l.* 275

By ROGERS, CHAPMAN, & THOMAS.

Clapton.—65, Kenninghall-rd., f., r. 40*l.* 750

Fulham.—35, Epirus-rd., f. 530

By JOSEPH STOWER.

Kensington.—5, Edith-villas, u.t. 23 yrs., g.r. 4*l.* 17s., r. 40*l.* 500

By DOUGLAS YOUNG & Co.

Clapham.—83 and 89, Sandmere-rd., u.t. 80 yrs., g.r. 14*l.* 350

Brixton.—7, Overton-rd., u.t. 61½ yrs., g.r. 10*l.* 10s., r. 52*l.* 400

Catford.—Hither Green-lane, eight plots of building land, f. 800

By SADLER & BAKER.

Frimley, Surrey.—The Windmill Estate, 114 a. 1 r. 20 p., f. 5,500

By F. JOLLY & Co.

Sutton, Surrey.—Worcester-rd., "Foxbury," f. .. 2,240

Hampstead.—West End-lane, f.g.'s. 50*l.* 8s., reversion in 91 yrs. 1,530

Mile End.—13 to 29 and 19A, North-pl., ... 8,120

Bethnal Green.—72 and 76, Mansford-st., area 7,500 ft., f. 2,340

20, 22 and 24, Pollard-st., f. 1,070

Bow.—370 and 372, Old Ford-rd., f. 1,100

71, 72, 74 and 75, Driffield-rd., f. 1,360

Woodford.—1 and 2, Pultney-rd., u.t. 82 yrs., g.r. 12*l.* 325

Homerton.—134, 136, and 138, Ballance-rd., u.t. 59 yrs., g.r. 16*l.* 795

14 and 16, Hassett-rd., u.t. 59 yrs., g.r. 8*l.* 8s.. 500

43, 45, 49 to 65 (odd), Hassett-rd., u.t. 59 yrs., g.r. 44*l.* 2,580

58, 60, 70 to 76 (even), Hassett-rd., u.t. 59 yrs., 25*l.* 4s. 1,530

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd for yard.

PRICES CURRENT OF MATERIALS:

WOOD.*

Per Petersburg standard hundred.

	£ s. d.	£ s. d.
White Sea: first yellow deals	18 0 0	22 10 0
Second do.	16 0 0	18 0 0
Third do.	13 0 0	14 10 0
Battens, 40s., 30s., and 15s. less respectively.		
Petersburg: first yellow deals	15 0 0	18 0 0
Second do.	12 10 0	14 0 0
Battens, 30s. and 20s. less respectively.		
Petersburg, white deals	13 0 0	15 0 0
Do. white battens	10 10 0	11 10 0
Riga, white deals	10 0 0	11 10 0
Swedish mixed yellow deals	16 10 0	21 0 0
,, Third do.	14 10 0	17 0 0
,, Fourth do.	13 0 0	14 10 0
,, Fifth do.	12 0 0	13 10 0
Battens, 30s., 20s., and 10s. less respectively.		
Whitewood, 10 to 20 per cent. less		
Finnish unsorted yellow deals	11 10 0	12 10 0
Battens, 10s. and 5s. less respectively.		
Whitewood, 5 to 10 per cent. less.		
Norwegian second yellow battens	8 0 0	8 15 0
Third do.	7 10 0	8 10 0
Fourth do.	7 10 0	7 15 0
Whitewood, 10s. less.		
Danzig, Crown Deck deals, per 40 ft. 3 in.	0 15 0	1 5 0
Brack	0 12 0	1 0 0
St. Lawrence Pine deals, &c., per P.S.H.:—		
1st, Bright and Dry, regular sizes	21 0 0	28 0 0
,, ,, oddments	14 10 0	22 0 0
and ,, regular sizes	16 10 0	19 0 0
,, ,, oddments	11 0 0	15 10 0
3rd ,, regular sizes	10 10 0	11 10 0
,, ,, oddments	9 0 0	10 0 0
4th ,, regular sizes	9 10 0	10 10 0
,, ,, oddments	8 10 0	9 10 0
St. Lawrence Spruce deals, &c.		
First, regular sizes	11 10 0	13 10 0
Second ,,	10 5 0	10 15 0
Third ,,	10 0 0	10 5 0
Fourth ,,	9 10 0	10 0 0

* The prices named are for the wood as imported and landed in the docks. Ten per cent., approximately, should be added in order to arrive at the current trade prices.

[See also page 503.

CONTRACTS, AND PUBLIC APPOINTMENTS.

(For some Contracts, &c., still open, but not included in this List, see previous issues.)

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c., Supplied by	Tenders to be delivered
*Widening, Walm-lane	Willesden District Council	Engineer, Public Offices, Kilburn, N.W.	May 22
*Road Making and Paving Works (several roads)	do.	do.	do.
*Kerbing, Paving, &c.	Lewisham Board of Works	Surveyor's Department, Town Hall, Catford, S.E.	do.
Renovating Chapel, Ystradfellte, near Penderyn		T. Roderick, Architect, Clifton-street, Aberdare	do.
Additions to Schools	Sherburn School Board	A. Hartley, Surveyor, Carlton Chambers, Castleford	do.
Two Houses, South Kirkby, Yorks.		Garside & Pennington, Architects, Pontefract	do.
Street Works, Featherstone		do.	do.
Alterations to Chapel, Twynyrodin, Merthyr Tydfil		T. Roderick, Architect, Clifton-street, Aberdare	do.
Granite Road Metal	Rushden (Northants) U.D.C.	W. B. Madin, Engineer, Vestry Hall, Rushden	do.
Surveyor's Materials	Aylesbury U.D.C.	J. H. Bradford, Surveyor, 2, Rickford's-hill, Aylesbury	do.
Well Deepening, near Park Station	Tottenham U.D.C.	Taylor & Co., Engineers, 27, Great George-street, S.W.	do.
Stoneware Sewers, &c., Argyle-street	Birmingham Corporation	J. Price, Civil Engineer, Council House	do.
Sewage Pumping Machinery	Southampton Corporation	W. B. G. Bennett, Engineer, Municipal Offices	do.
Sewage Outfall Works, Wallerscote	Northwich U. & R.D.C.	H. Bancroft & Son, Civil Engineers, 88, Mosley-st. Manchester	do.
Lime Bricks, Flagging, &c.	Leeds Corporation	R. H. Townsley, Municipal Buildings	do.
Street Works, Healds-road	Dewsbury Corporation	Borough Surveyor, Town Hall	do.
Granite Road Metal (250 tons)	Diss (Norfolk) U.D.C.	S. Lait, Surveyor, Mere-street, Diss	do.
New Streets, Netherton	Dudley Corporation	J. Gammage, Borough Surveyor, Town Hall	do.
Main Sewer, Wyke Green, Isleworth	Southall-Norwood U.D.C.	H. R. Felkin, Engineer, High-street, Southall	do.
Street Works, High-street, Southall, Middx.	do.	do.	do.
Chapel, Duke-street, Wrexham	The Trustees	Davies & Moss, Architects, 11, Regent-street, Wrexham	May 23
Stoneware Pipes, Glanford	Brigg R.D.C.	F. C. Hett, Council Offices, Brigg	do.
Alterations to Workhouse	Southwell (Notts.) Union Guardians	W. Cottam, Surveyor, Church-street, Southwell	do.
Rebuilding the Ord Arms, Scotswood, Newcastle-on-T.	Mr. F. M. Laing	Oliver, Leeson, & Word, Archts., Mosley-st., Newcastle-on-Tyne	do.
Twenty Houses, Llanharran	Brynna Building Club	G. F. Lambert, Architect, Bridgend	do.
Storage Reservoir, &c., Blarbuie Burn	Lochgilphead (N.B.) Commissioners	Town Clerk, Lochgilphead	do.
Granite and Flint Road Metal, Hayward's Heath	Cuckfield U.D.C.	T. Simmons, Surveyor, Cuckfield	do.
Concrete Sea Wall, Eyemouth, Berwickshire	The Committee	Meik & Sons, Engineers, 29, St. Andrew's-square, Edinburgh	do.
Kerbing, Channelling, &c, Richmond-road	Twickenham U.D.C.	F. W. Pearce, Surveyor, Town Hall	do.
Two Houses and Shop, Streethouse, Pontefract	Mr. Chas. Mounty	W. H. Fearniey, Architect, Featherstone	May 24
Shop and Warehouse, Southwell, Notts.	Mr. J. J. Bates	Sheppard & Harrison, Architects, 17, Kirkgate, Newark	do.
Timber, Bricks, Slates, &c.	Kilkenny Guardians	K. Comerford, Union Offices, Kilkenny	do.
Additions to Infirmary	Banbury Union Guardians	H. Hopkins, Southam-road, Banbury	do.
House, Disblair, N.B.		Wilsone & Duffus, Aberdeen	do.
Sewering, Levelling, &c., Eight Streets	Bexhill U.D.C.	G. Ball, Civil Engineer, Town Hall	do.
Sewering Ashton-road, &c.	Blackpool Corporation	J. Wolstenholme, Civil Engineer, Town Hall	do.
Granite, &c.	Cuckfield U.D.C.	W. Beach, Surveyor, Hayward's Heath	do.
Stabling, &c., Horton-street, Halifax		G. Buckley & Son, Architects, Tower Chambers, Halifax	do.
Eighteen Houses, Glebe Estate, Hunstanton	The Proprietors	W. Wren, Surveyor, Mount Pleasant, Cambridge	do.
*Eighteen Houses on Glebe Estate, Hunstanton	St. George-in-the-East Guardians	Roberts' Temperance Hotel, Hunstanton	do.
*Painting, &c., Workhouse, and other Works	Ton Industrial Co-op. Soc., Ltd.	G. A. Wilson, Vestry Hall, Cable-street, E.	May 25
Stabling, &c., Pentre, Wales	Shardlow R.D.C.	Manager, 2, Church-road, Ton, Pentre	do.
Sewering Derby-road, Chellaston	Wetherby R.D.C.	J. W. Newbold, Becket-street, Derby	do.
Sewerage Works, Tockwith	West London School District	Martin & Fenwick, Surveyors, 1, Park-street, Leeds	do.
*Painting District School, Ashford, near Staines	Diss (Norfolk) U.D.C.	Superintendent, District School, Ashford, near Staines	do.
Belgian Granite (250 tons)	Ely U.D.C.	S. Lait, Surveyor, Mere-street, Diss	May 26
Granite Road Metal	Tadcaster R.D.C.	G. M. Hall, Market-square, Ely	do.
Sewers, &c.	Managers of Portlade Indus. School	W. Spinks, Civil Engineer, 20, Park-row, Leeds	do.
School, near Brighton	Caledonian Railway Company	T. Simpson & Son, Surveyors, 17, Ship-street, Brighton	do.
Pier Extension, Wemyss Bay	Colonel Aglionby	J. Blackburn, 302, Buchanan-street, Glasgow	do.
Farm Buildings, near Carlisle	Mr. E. F. Newling	Richardson & Son, Architects, 5, Lonsdale-street, Carlisle	do.
Farm House, Boyce's Bridge, Wisbech	Hayward's Heath (Sussex) U.D.C	Kerridge & Sons, Architects, The Club Chambers, Wisbech	do.
Paving Works, &c.	Caledonian Railway Company	W. Beach, Surveyor, Hayward's Heath	do.
Widening Railway, Port Glasgow to Upper Greenock	Middlesbrough Corporation	J. Blackburn, 302, Buchanan-street, Glasgow	do.
Heating Public Baths, New-street		G. Bainbridge, Town Hall	do.
Offices, East Broadley Mill, Aberdeen	Darwen Corporation	R. Macdonald, 16, Union-terrace, Aberdeen	do.
Cast-iron Mains, Piping, &c.	Ilford U.D.C.	A. H. Smith, Engineer, Town Hall, Darwen	do.
Pumping Station, Loxford-lane	The Committee	Taylor & Co., Engineers, 27, Great George-street, S.W.	May 28
Painting, &c., Bethel Chapel, Glyn-Neath, Wales	St. Annes-on-Sea U.D.C.	J. S. Thomas, Glyn-Neath	do.
Sewering, &c., Link's Gate	Burton-upon-Trent Town Council	H. Bancroft & Son, Civil Engineers, 88, Mosley-street, Manchester	do.
Lime (400 tons)	Woodford (Essex) U.D.C.	F. L. Ramsden, Engineer, Wetmore-road, Burton	do.
Tar Paving Footpaths	Braintree U.D.C.	W. Farrington, Surveyor, Council Offices	do.
Granite Road Metal	Burgess Hill (Sussex) U.D.C.	H. H. Nankivell, Surveyor, Vestry Hall	May 29
Flint Road Metal	Thame U.D.C.	A. F. Hardwick, Council Offices	May 30
Granite Road Metal (1,050 tons), &c.	Tanfield U.D.C.	D. W. Slocombe, Surveyor, 27, Park-street, Thame	do.
Sewer, Lintz Colliery, co. Durham		R. Heslop, Surveyor, Burnopfield, R.S.O.	do.
Additions to Schools, Castle Hedingham, Essex	St. John, Hampstead, Vestry	National School Managers, Castle Hedingham	May 31
*Erection of Boiler House	Croydon County Council	Surveyor, Vestry Hall, Haverstock Hill	do.
*Hydraulic Lift and Laundry Machinery	Cambrian Railways Company	Borough Engineer's Offices, Town Hall, Croydon	June 1
Light Railway (15 miles) Port-y-Waen, Salop	Whickham (Durham) U.D.C.	A. J. Collin, Engineer, Oswald-road, Oswestry	June 5
Sewerage Works	Paddington Guardians	J. P. Spencer, Civil Engineer, 13, Grainger-st. West, Newcastle	do.
*Painting, &c., Works at Infirmary	Ealing U.D.C.	E. Howley Sim, Architect, 8, Craig's-court, Charing Cross, W.C.	do.
*Materials, &c.	Kingston-on-Thames Corporation	C. Jones, Public Buildings, Ealing, W.	do.
*Paving	Ealing U.D.C.	Borough Surveyor, Clattern House, Kingston-on-Thames	June 6
*Alteration to Fire Station, &c.	Leominster Corporation	Engineer, Public Buildings, Ealing, W.	June 7
Valves, &c.	do.	J. Budd, Civil Engineer, Town Hall	June 9
Cast-iron Tank, Girders, Pipes, &c.	Wanstead School Board	do.	do.
*Painting and Repairs to Schools	Itchen U.D.C.	See Advertisement	June 11
*Sewerage Works	Hackney Vestry	F. Wentworth-Shields, Engr., 1, Cranbury-road, Southampton	do.
*Disinfecting Station, Shelters, &c., at Clapton	Admiralty	Gordon & Gunton, Architects, Finsbury House, E.C.	June 12
*Coastguard Buildings at Cromer	Croydon County Council	See Advertisement	June 15
*Sewers	do.	Borough Engineer's Offices, Town Hall, Croydon	June 18
*Engines and Pumps		do.	do.
House and Stables, 1, Hookergate-lane, Durham		J. Lawson, 35, Park-terrace, Swalwell	No date
Villa, &c., Audenshaw, Lancs.		E. Garside, Civil Engineer, Town Hall Chambers, Audenshaw	do.
Additions to Business Premises, Sackville-st. Bradford		Empsall & Clarkson, Architects, 7, Exchange, Bradford	do.
Road Works, Lionel-crescent, &c., Ilkley		do.	do.
Road Works, Harrogate		Mr. Stead, 33, James-street, Harrogate	do.
Forming & Sewering Two Streets, Wincobank, Sheffield	Attercliffe Estate Company Ltd.	W. J. Beall, Surveyor, 23, Bank-street, Bradford	do.
Rowley Rag (2,080 tons)	Seisdon R.D.C.	W. Cannon, Surveyor, Wombourn, near Wolverhampton	do.
Hotel, Westhouses, Chesterfield		W. T. Rhoden, Architect, St. James'-street, Sheffield	do.
Heating a Church, Craghead		H. Greener, 3, Edward-street, Craghead, Chester-le-Street	do.
Additions to Swan Hotel, Eastbrook, Dinas Powis		Tudor, Thornley & Jones, Architects, St. Mary-street, Cardiff	do.
Five Cottages, Mickley, Northumberland	Mickley Colliery Company	W. Bedlington, Architect, 23, Eldon-square, Newcastle	do.
Six Almhouses, Pudsey, Yorks.		C. S. Nelson, Architect, 15, Park-row, Leeds	do.
Alterations at Hatt House, near Saltash	Lady Penn Symons	E. M. Leest, Architect, Public Hall Chambers, Devonport	do.
House, Tavistock		W. Snell, West-street, Tavistock	do.
Three Houses, Bacup-road, Waterfoot (Lancs.)	R. Siddall's Executors	F. J. Hobson, Architect, King-street, Rawtenstall	do.
Four Houses, Knox-road, Wellingborough		G. Lawrence, Knox-road, Wellingborough	do.
House, Store, &c., Arisaig, N.B.		T. Allison, Fort William	do.
Nurses' Home, Beckett Hospital, Barnsley		R. W. Dixon, Architect, 5, Eastgate, Barnsley	do.
Restoration of Thirteen Almshouses, Lichdon-street	Barnstaple Mun. Charity Trustees	F. W. Petter, Architect, Bridge Buildings, Barnstaple	do.
Additions to Anchor Inn, Briton Ferry, Glam.	Mr. E. E. Bevan	J. Cook Rees, Architect, Neath	do.
*New Roads, Sewers, &c., High Wycombe	Right Hon. Earl Carrington	J. Carter, Jonas & Sons, Surveyors, Cambridge	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
*Assistant Engineer	Watford U.D.C.	120*l.* per annum	May 24
*Clerk of Works	West Hartlepool Corporation	4*l.* per week	May 25
*Temporary Surveyors (2)	London County Council	3*l.* 3*s.* per week (not exceeding)	do.
*Architectural Assistant	Rochdale Corporation	120*l.* per annum	May 26
*Clerk of Works	Portland U.D.C.		May 31
*Inspector of Works	East Ham U.D.C.	3*l.* per week	June 28

Those marked with an asterisk (*) are advertised in this Number. *Competitions*, p. —. *Contracts*, pp. iv. vi. viii. x. & xxi. *Public Appointments*, pp. xviii. & xxi.

PRICES CURRENT (*Continued*).

	£	s.	d.	£	s.	d.
Oddments and battens at 20s., 10s., 7s. 6d., and 5s. less respectively.						
New Brunswick Spruce deals, &c.	10	0	0	11	5	0
Oddments, battens, and fourths ..	9	10	0	10	0	0
United States pitch pine planks and boards ..... per square	11	0	0	15	0	0
Prepared Boards,						
1½ by 6½ and 7 in. 1st yellow		11	6		16	3
,, ,, and ,, ...		11	0		13	3
1 by 6½ and 7 in. 1st ,, ...		10	6		12	3
,, ,, ,, white		9	6		10	3
,, ,, and yellow		9	6		11	3
,, ,, ,, white		8	6		9	3
⅞ by 6½ & 7 in. 1st & 2nd yellow		8	3		9	3
,, ,, white		8	0		8	9
¾ by 6½ and 7 in. 1st yellow and white (grooved, tongued, and beaded)		9	0		9	9
¾ by 6½ and 7 in. 2nd yellow and white (ditto)		8	0		8	
¾ by 6½ and 7 in. 1st yellow and white (ditto)		7	0		7	9
¾ by 6½ and 7 in. 2nd yellow and white (ditto)		6	6		7	3
Narrower widths at 10 per cent. less. 3rd quality at 25 per cent. less than 2nd.						
Danzig and Memel Fir Timber— per load						
Best middling	4	0	0	4	5	0
Good middling and Second	3	7	6	3	15	0
Common middling	3	2	6	3	10	0
Undersized	3	2	6	3	12	0
Swedish and Norwegian Balks	2	12	6	3	0	0
Baltic Oak Timber—						
Danzig and Stettin—Large	4	0	0	5	15	0
Small	3	7	6	4	5	0
Quebec Timber per load						
Yellow Pine	4	17	6	6	10	0
Oak	4	7	6	6	10	0
Elm	4	0	0	4	5	0
Ash	3	5	0	4	0	0
Birch	3	7	6	5	15	0
New Brunswick, &c., Birch	3	5	0	4	0	0
American Pitch Pine Timber	3	12	6	4	17	6
Wainscot, per log, 18 cubic ft.— Crown (Eng. & Dutch) } nominal Brack }	3	15	0	5	0	0
	3	2	6	4	0	0
Lathwood, per cubic fathom—						
Petersburg	4	0	0	6	10	0
Riga and Danzig	4	10	0	5	10	0
Norway Poles, per ft. run	0	0	1	0	0	1½
Oak Staves, per mille full size pipe						
Memel, Crown	220	0	0	230	0	0
Brack	190	0	0	200	0	0
Danzig	165	0	0	175	0	0
Bosnia, single Barrel (nominal)	28	0	0	30	0	0
United States, Pipe	37	10	0	45	0	0
Hogshead, extra heavy and double extra	30	0	0	35	0	0
Indian Teake per load	11	10	0	16	5	0
British Guiana Greenheart	0	0	0	8	0	0
Mahogany, per foot superficial—						
Honduras, cargo average	0	0	4½	0	0	5½
Nicaragua, do.	0	0	4½	0	0	5½
Tabasco, do.	0	0	4½	0	0	6
Mexican, do.	0	0	4	0	0	4½
Panama, do.	0	0	3½	0	0	4
African, do.	0	0	3½	0	0	5
Cuba, do	0	0	6	0	0	8
St. Domingo, do.	0	0	5	0	0	7½
Do. Curls (good to prime)	0	0	9	0	1	3
Walnut, American (logs)	0	3	0	0	5	0
Do. do. (planks and boards)	0	2	6	0	7	6
Italian, per foot superficial	0	0	3	0	0	7½
Black Sea, per ton	6	0	0	12	0	0
Satin Walnut (logs) per foot cube	0	1	0	0	1	6
,, (planks and boards)	0	1	9	0	3	0
Sequoia (Californian redwood), per foot cube	0	1	9	0	2	0
Whitewood, American (logs)	0	1	4	0	1	9
,, ,, (planks and boards)	0	1	9	0	2	9
Quartered oak ,, ,,	0	2	3	0	4	0
Kauri pine (logs)	0	1	9	0	2	0
,, ,, (planks)	0	2	3	0	2	9
Jarrah (planks)	0	2	0	0	2	3
Lancewood spars each, fresh and large	0	5	0	0	7	0
Lancewood spars, ordinary to fair	0	3	0	0	4	0
Degame spars	0	8	0	0	10	0

METALS.

Iron—Pig, in Scotland ton	3	10	5	3	10	6
Bar, Welsh, in London	9	0	0	9	15	0
Do. do. at works in Wales	8	10	0	9	0	0
Do. Staffordshire, in London	9	15	0	11	15	0
Copper British cake and ingot	77	10	0	78	10	0
Best selected	78	10	0	79	12	0
Sheets, strong	87	0	0	0	0	0
Chili bars	73	7	6	73	12	6
Yellow Metal lb.		6½d.			7d.	
Lead—Pig						
Spanish ton	17	0	0	0	0	0
English Com. Brands	17	10	0	0	0	0
Sheet, English, 6 lbs. per sq. ft. and upwards	19	0	0	0	0	0
Pipe	19	10	0	0	0	0
White Lead	26	12	0	0	0	0
Zinc—						
Vieille Montagne ton	29	0	0	0	0	0
Silesian	28	10	0	0	0	0
Spelter	21	10	0	0	0	0
Tin—Straits	138	10	0	0	0	0
Australian	139	10	0	0	0	0
English Ingots	143	0	0	0	0	0
Banca	0	0	0	0	0	0
Billiton	0	0	0	0	0	0

ENGLISH SHEET GLASS IN CRATES.

15 oz. thirds	2½d. per ft. delivered.
,, fourths	2d. ,, ,,
21 oz. thirds	3d. ,, ,,
,, ,, fourths	2½d. ,, ,,
26 oz thirds	4d. ,, ,,
,, ,, fourths	3½d. ,, ,,
32 oz. thirds	5d. ,, ,,
,, ,, fourths	4½d. ,, ,,
Fluted sheet, 15 oz.	2½d. ,, ,,
,, ,, 21 ,,	3½d. ,, ,,

PRICES CURRENT (*Continued*).

OILS, &c.

	£	s.	d.	£	s.	d.
Raw Linseed Oil in pipes, per ton	36	0	0	0	0	0
,, ,, ,, in drums, per gal.	0	3	0	0	0	0
Boiled ,, ,, in pipes, per ton	38	0	0	0	0	0
,, ,, ,, in drums, per gal.	0	3	2	0	0	0
Tar—Stockholm barrel	1	6	6	0	0	0
Archangel	1	0	0	0	0	0
Turpentine, in barrels, per cwt.	2	6	0	0	0	0
,, in drums, per gal.	0	3	8	0	0	0
Genuine Ground English White Lead	25	10	0	0	0	0
Red Lead	22	0	0	0	0	0
Best Linseed Oil Putty, per cwt.	0	8	0	0	0	0

VARNISHES, &c.

	per gallon.		
Fine Elastic Copal Varnish for outside work	0	16	0
Best Elastic Copal Varnish for outside work	1	0	0
Best Elastic Carriage Varnish for outside work	0	16	0
Best Hard Oak Varnish for inside work	0	10	0
Best Extra Hard Church Oak Varnish for inside work	0	10	0
Fine Hard Copal Varnish for inside work	0	16	0
Best Hard Copal Varnish for inside work	1	0	0
Best Hard Carriage Varnish for inside work	0	16	0
Extra Pale Paper Varnish	0	12	0
Best Japan Gold Size	0	10	0
Best Black Japan	0	16	0
Oak and Mahogany Stain	0	8	0
Brunswick Black	0	8	0
Berlin Black	0	15	6
Knotting	0	9	0
Best French and Brush Polish	0	8	6

BRICKS, &c.

	s.	d.				
Hard Stocks	30	0	per thousand alongside, in river.			
Rough Stocks and Grizzles	28	0	,,	,,	,,	,,
Smooth Bright Facing Stocks	58	0	,,	,,	,,	,,
Shippers	42	0	,,	,,	,,	,,
Flettons	29	0	,,	,,	at railway depôt.	
Red Wire Cuts	34	0	,,	,,	,,	,,
Best Fareham Red	71	6	,,	,,	,,	,,
Best Blue Pressed Staffordshire	85	0	,,	,,	,,	,,
Best Stourbridge Fire Bricks	84	0	,,	,,	,,	,,
Best White Glazed Stretchers	260	0	,,	,,	,,	,,
Headers	240	0	,,	,,	,,	,,
Quoins and Bull-nose	340	0	,,	,,	,,	,,
Double Headers	320	0	,,	,,	,,	,,
Best Dipped Salt Glazed Stretchers and Headers	240	0	,,	,,	,,	,,
Quoins and Bull-nose	280	0	,,	,,	,,	,,
Double Headers	230	0	per thousand at railway depôt.			
Seconds Quality White and Dipped Salt Glazed	40	0	per thousand less than best.			
Thames and Pit Sand	7	0	per yard, delivered			
Thames Ballast	6	6	,,	,,		
Best Portland Cement	35	0	per ton			
Best Ground Blue Lias Lime	23	0	,,	,,		

Note.—The cement and lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... 12s. od. per yard, delivered.
Stourbridge Fire-clay in sacks, 31s. 6d. per ton at rly. dpt.

STONE.

	s.	d.			
Ancaster in blocks	2	0	per ft. cube, deld. rly. depôt		
Bath ,,	1	7	,,	,,	
Beer ,,	1	6½	,,	,,	
Grinshill ,,	1	10	,,	,,	
Brown Portland in blocks	2	2	,,	,,	
Darley Dale ,,	2	1½	,,	,,	
Red Corsehill ,,	2	5	,,	,,	
Red Mansfield ,,	2	4½	,,	,,	
Hard York ,,	2	10	,,	,,	
Hard York 6 in. sawn both sides landings, to sizes (under 40 ft. sup.)	2	7	per ft. super at rly. depôt.		
,, ,, 6 in. Rubbed Ditto	2	10½	,,	,,	
,, ,, 3 in. sawn both sides slabs (random sizes)	1	3	,,	,,	
,, ,, 3 in. self-faced Ditto	0	9	,,	,,	

SLATES.

in. in.	£	s.	d.		
20×10 best blue Bangor	11	5	0	per 1000 of 1200 at ry. dep.	
,, best seconds ,,	10	15	0	,,	,,
16× 8 best ,,	6	2	6	,,	,,
20×10 best blue Portmadoc	10	18	0	,,	,,
16× 8 ,, ,,	6	0	0	,,	,,
20×10 best Eureka unfading green	11	2	6	,,	,,
16× 8 ,, ,,	6	15	0	,,	,,
20×10 Permanent green and Sedan green	10	0	0	,,	,,
16× 8 ,, ,,	5	12	6	,,	,,

TILES.

	s.	d.			
Best plain red roofing tiles	41	0	per 1,000 at rly. depôt.		
Hip and valley tiles	3	7	per doz.	,,	,,
Best Broseley tiles	48	0	per 1,000	,,	,,
Hip and valley tiles	4	0	per doz.	,,	,,
Best Ruabon Red, brown or brindled Do. (Edwards)	57	6	per 1,000	,,	,,
Do. ornamental Do.	60	0	,,	,,	,,
Hip tiles	4	0	per doz.	,,	,,
Valley tiles	3	9	,,	,,	,,
Best Red or Mottled Staffordshire Do. (Peakes)	50	9	per 1,000	,,	,,
Hip tiles	4	1	per doz.	,,	,,
Valley tiles	3	8	,,	,,	,,

TO CORRESPONDENTS.

M. & S. (Below our limit). J. B.—T. L.—E. L. (Amounts should have been stated).

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TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than 10 a.m. on Thursdays.* N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is under £100, unless in some exceptional cases and for special reasons.]

* Denotes *accepted.* † Denotes *provisionally accepted.*

BEESTON (Notts).—For works to be done in forming, excavating, levelling, sewering, ballasting, channelling, and metalling a road 40 ft. wide in the township of Beeston. Mr. Fred. C. Martin, engineer. Quantities by the engineer:—

H. H. Barry	£1,780	0	0
B. Roberts	1,700	3	3
Cox & Son	1,652	2	8
Cope & Raynor	1,600	0	0
Bower Bros.	1,536	6	3
A. B. Clarke	£1,530	0	0
W. Cordon	1,420	0	0
S. Richmond, Lenton*	1,394	0	0

BEESTON REGIS (Norfolk).—For erecting a house for Mrs. E. P. Watkin. Mr. Herbert J. Green, architect and surveyor, 31, Castle-meadow, Norwich:—

Smith, J. S.	£2,016	0	0
Riches, George	1,954	6	0
Bardell Bros.	1,845	0	0
Daws, R., & Son	£1,824	0	0
Bullen, Herbert, Cromer*	1,718	11	4

BRENTFORD.—For the erection of workmen's dwellings, Starnage-road, for the Urban District Council. Mr. Nowell Parr, C.E., Clifden House, Boston-road, Brentford:—

D. Pitt	£6,496	0	0
Godson & Sons	6,488	0	0
Beaton	6,413	0	0
Parsons & Co.	6,344	0	0
Higgs & Co.	6,269	0	0
W. Wisdom,	6,090	0	0
Martin, Wells, & Co.	5,980	0	0
Harris	5,614	19	0
Hanson	£5,597	0	0
Belch	5,583	14	6
J. Christie	5,572	0	0
Jones Bros.	5,533	4	8
S. Dockerell	5,528	0	0
Soole & Sons, Richmond†	5,384	15	11
C. R. Yurr,	5,375	0	0

BRIGHTON.—For alterations, &c., to waterworks offices, Bond-street, for the Corporation. Mr. F. J. C. May, C.E., Town Hall, Brighton:—

Longley & Co.	£2,249		
Barber & Olliver	1,721		
V. P. Freeman, Kensington-street, Brighton*	£1,649		

CAMBERLEY.—For the erection of a bank at Camberley, Surrey. Messrs. Hunter, Sadler, & Baker, architects, London and Camberley. Quantities by Mr. C. Oswald Robson, 50, Queen Anne's-gate, Westminster:—

Spear & King	£2,329		
Hughes, Woking-ham*	£2,100		

CARDIFF.—For new premises in James-street, Bute Docks, Cardiff, for Messrs. Rose & Co., engineers. Mr. Edgar Down, architect and surveyor, 31, High-street, Cardiff:—

J. E. Evans	£4,775		
G. Griffiths	3,790		
Melhuish Bros.	3,662		
F. Small	3,616		
H. Gibbon	3,615		
J. Allen	£3,587		
S. Shepton & Sons	3,41[illegible]		
E. Turner & Sons	3,280		
David Davies	3,250		
W. T. Morgan*	3,175		

FINEDON.—For additions to shoe factory at Finedon, Northants, for Mr. J. H. Fox. Mr. H. Adnitt, architect:—

F. Henson	£468		
A. J. Ball	460		
J. Titmas, Finedon*	£450		

GRIMSBY.—For extensions to the workhouse, for the Guardians of the Poor. Mr. H. C. Scaping, architect, Court Chambers, Great Grimsby. Quantities by Mr. J. Watson, Hull:—

Webb & Waterman	£8,325	6	3
Thompson & Sons	7,987	0	0
H. Marrows	7,792	0	0
Hewins & Goodhand*	7,270	0	0

[All of Grimsby.]

HOVE (Sussex).—For the execution of road works, Sackville-gardens, &c. Mr. H. H. Scott, Borough Surveyor, Town Hall, Hove:—

St. Leonard's-road.

Parsons & Sons, Church-road, Hove* £365

Sackville-gardens.

Hother & Co., Clarendon-villas, Hove* .. £1,197

[*See also next page.*

KNETTISHALL (Suffolk).—For the erection of farm buildings, for Mr. W. N. L. Champion. Mr. H. J. Green, architect, 31, Castle Meadow, Norwich :—

Youngs & Son	£2,740 0 0	R. Hogg, Co-ney Weston*	£2,422 6 4
Newson & Son	2,573 18 0	T. Lebbon ..	2,330 13 4

LONDON.—For new sanitary annexes, kitchen, and other works, Charing Cross Hospital, London, W.C. Mr. A. Saxon Snell, architect. Quantities by Messrs. Northcroft, Son & Neighbour :—

Higgs & Hill	£4,984	Holloway Bros.	£4,450
Bywaters & Sons ..	4,646	Howard & Co., Russell-st., W.C.*	3,992
Patman & Fotheringham	4,556		

LONDON.—For the erection of a tank house at the Bow Brewery, E. Messrs. Foulsham & Herbert Riches, architects, 3, Crooked-lane, King William-street, E.C., and Bromley-by-Bow, E. Quantities supplied :—

Jerrard & Sons	£4,485	F. & T. Thornet	£3,864
G. Parker	4,100	W. Shurmur	3,803
C. Cox	3,920	‡ Accepted (shorter time).	

LONDON.—For first portion of the new Electricity Supply Station, Osborn-street, for the Whitechapel District Board of Works. Mr. M. W. Jameson, engineer. Quantities by Mr. John R. Hunt, 181, Queen Victoria-street, E.C. :—

Patman & Fotheringham	Received late.	Holliday & Greenwood	£15,889
H. L. Holloway	£19,500	W. Griffiths*	15,774
Kirk & Randall	18,548	J. O. Richardson ..	15,555
Harris & Wardrop .	18,200	Martin, Wells, & Co.	15,521
Perry & Co.	17,589	Chessum & Sons ..	15,256

[Engineer's estimate, £15,890.]

MIRFIELD.—For the extension of the Grammar School, for Mr. J. Lane Fox, architect, Bond-street, Dewsbury :—

Excavating, Masonry, and Bricklaying.—W. Oates, Mirfield* ..... }
Carpentery and Joinery.—Barker & Clough, Mirfield* ..... }
Plumbing and Glazing.—Walker & Co., Mirfield* ..... } £686 16
Slating.—A. Shaw, Mirfield* ..... }
Plastering.—W. Parker, Heckmondwike* .. }
Painting.—N. Ramsden, Dewsbury* ..... }

PORTSMOUTH.—For the erection of offices, &c., St. Michael's-road, for the Union Guardians. Messrs. Rake & Cogswell, architects, Prudential-buildings, Portsmouth :—

Martin, Wells, & Co.	£3,354	M. Colthrup	2,850
C. H. Roberto	2,900	Clark & Sons	£2,828
Light & Son	2,898	E. & A. Sprigings, Portsmouth*	2,750
J. Crockerell	2,865		

RUSHDEN.—For the erection of house in Queen-street, Rushden, Northants, for Mr. F. Denton. Mr. H. Adnitt, architect :—

C. E. Bayes	£312 0 0	Whittington & Tomlin	£295 0 0
T. Wilmott	309 0 0	T. Swindall	289 0 0
H. Sparrow	299 19 9	Dickens Bros., Rushden*	248 0 0
T. & C. Berrell	299 0 0		

RUSHDEN.—For the erection of house in Oswald-street, Rushden, Northants, for Mr. W. Knight. Mr. H. Adnitt, architect :—

Dickens Bros.	£473 10 0	T. Wilmott, Rushden*	£442 0 0
H. Sparrow	470 0 0	Whittington & Tomlin	429 0 0
C. E. Bayes ..	445 0 0	T. & C. Berrell	424 0 0

RUSHDEN.—For the erection of new bakery, house, stables, &c., in Newton-road., Rushden, Northants, for Mr. Eyte. Mr. H. Adnitt, architect :—

W. Packwood, Rushden* £744

[No competition.]

TOTTENHAM.—For the erection of sixteen villas on Mount Pleasant, Tottenham, for Mr. T. Waple. Mr. A. C. Green, architect, Bruce Castle-road, Tottenham :—

William Hawley, Tottenham* £5,200

TOTTENHAM.—For the erection of a villa residence on Mount Pleasant, Tottenham, for Mr. W. W. Attenborrow. Mr. A. C. Green, architect, 40, Bruce Castle-road, Tottenham :—

J. Groves	£788 0	W. Hawley	£350 0
W. Ward	628 19	J. Stewart	468 0
J. Norris	625 0		

WOKING.—For the erection of detached house for Mr. P. Macdonald. Mr. William G. Jones, architect, Woking :—

J. Whitburn	£980	A. A. Gale	£900
G. Allard	975	Drowley & Co.*	819
Ingram & Son	948	[All of Woking.]	

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